

# LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

Transport Assessment (TR-001-000)

Part 9: West Midlands assessment

Traffic and transport

November 2013

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**Part 9: West Midlands assessment**

**Traffic and transport**

November 2013



## Department for Transport

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## 8 West Midlands assessment

### 8.5 Castle Bromwich and Bromford (CFA25)

#### Castle Bromwich and Bromford (CFA25) Proposed Scheme description

- 8.5.1 The Castle Bromwich and Bromford area (CFA25) commences at chainage 165+700 and ends at chainage 170+350 of the Proposed Scheme.
- 8.5.2 Figure 2 (Volume 2, CFA Report 25) details the location of the Castle Bromwich and Bromford area. Coleshill Junction (CFA19) lies to the east, Curdworth to Middleton (CFA20) lies to the north east, Birmingham Interchange and Chelmsley Wood lies to the south east (CFA24), and Washwood Heath to Curzon Street (CFA26) lies to the west.
- 8.5.3 The route of the Proposed Scheme through this area is approximately 5.1km long and commences just south of the B4118 Birmingham Road, north of Chelmsley Wood (see Map CT-10-067, Volume 2, Map Book 25). The route will run west, initially in a deep cutting through higher ground, and then emerging onto a viaduct across the valley floor and the diverted River Tame. The route will then continue on embankment across the extended Plants Brook and Dunlop Channel, typically 10-15m south of the Birmingham and Derby railway.
- 8.5.4 The route will then descend to below ground level initially in a cutting with retaining walls, before entering Bromford Tunnel, the eastern portal of which will be situated 300m east of the A452 Chester Road in what is currently the Castle Bromwich Business Park. The tunnel will pass below the A452 Chester Road, under the River Tame, the M6 and Bromford Drive. At this point, the route (still in tunnel) will leave the Castle Bromwich and Bromford area (the remaining part of the tunnel is described in the Washwood Heath to Curzon Street (CFA26) section of this report). The length of the tunnel within the Castle Bromwich to Bromford area is 2.2km, the full length of the tunnel will be 2.9km (see Volume 2: Maps CT-06-135 to CT-06-138a).
- 8.5.5 The route will start in this area heading generally west, towards Birmingham city centre. The route will be in deep cutting as it passes from the adjacent Coleshill Junction (CFA19) into the Castle Bromwich and Bromford area. It will pass under the B4118 Birmingham Road.
- 8.5.6 The route will head west from the Park Hall Wood embankment, onto the River Tame viaduct, across the diverted River Tame and then onto a raised embankment adjacent to and parallel with the Birmingham and Derby railway. The route will pass over Plants Brook and Dunlop Channel before entering the eastern edge of the Castle Bromwich Business Park. From this point the route will descend into cutting, heading towards the proposed Bromford Tunnel.

- 8.5.7 From the eastern tunnel portal westwards to the boundary with Washwood Heath to Curzon Street area, the Proposed Scheme will comprise a twin-bore tunnel - one tunnel bore will run a track west towards Curzon Street station and the other will run the other track east towards Water Orton and the proposed Delta Junction.
- 8.5.8 The area of land required for the Proposed Scheme will include part of the Castle Bromwich Business Park and Hayward Industrial Estate. The land for the construction of the eastern tunnel portal, the infrastructure and its associated features will be required permanently. Key transport related design features of this section will include (see Volume 2: Maps CT-06-137 to CT-06-138a) the Bromford tunnel. There will be cross-passages connecting the two bores, for access, approximately every 380m. There is no requirement for escape or emergency ventilation and intervention shafts (vent shafts) in a tunnel of this length.
- 8.5.9 The route will then continue into the Washwood Heath and Curzon Street area (CFA26) in cutting, with the Washwood Heath Depot located immediately west of the Castle Bromwich and Bromford area boundary.

#### *Assessment methodology*

- 8.5.10 The overall assessment methodology is consistent with that outlined in the regional methodology section of the report for the West Midlands. Additionally, with the delivery of the Washwood Heath Depot in the adjacent Washwood Heath to Curzon Street area (CFA26), businesses and associated traffic will be displaced. Therefore, the following local methodology has been adopted to account for the replacement of this traffic on the network by the Proposed Scheme, which will affect both the Washwood Heath to Curzon Street (CFA26) and Castle Bromwich to Bromford areas (CFA25).

#### *Wolseley Drive - traffic abstraction*

- 8.5.11 UK Mail, DVLA, and Charles Wilson Engineers Ltd are located on the site of the proposed depot or depot access road, and are currently accessed via Wolseley Drive, and the A4040 Bromford Lane/Wolseley Drive/Bromford Road junction to the east. It is assumed as part of the Proposed Scheme that the UK Mail and DVLA businesses will be displaced as they are on the site of the proposed depot. Charles Wilson Engineers Ltd (CW Plant Hire Ltd) will have their access and storage yard removed during construction, for approximately four years, and therefore it is assumed that the business would need to relocate. Therefore, existing traffic associated with these businesses has been removed from the network when considering the 2021, 2026 and 2041 Proposed Scheme scenarios.

- 8.5.12 To determine the existing level of traffic generated by businesses accessed via Wolseley Drive, traffic counts were completed at the A4040 Bromford Lane/Wolseley Drive/Bromford Road junction. The level of trips generated by businesses at Wolseley Drive, as determined by the traffic count, is shown in Table 8-296.

Table 8-296: Trip generation for existing businesses accessed via Wolseley Drive

Vehicle type	AM peak (08:00-09:00)			PM peak (17:00-18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Cars/LGVs	119	56	175	54	116	170
HGVs	6	8	14	8	3	11
Total	125	64	189	62	119	181

- 8.5.13 The results of the count show that the businesses currently generate 189 two-way trips during the AM peak (08:00-09:00) and 181 two-way trips during the PM peak (17:00-18:00). In order to distribute these trips across the Washwood Heath network, existing turning proportions based on further traffic counts in the CFA25 and 26 areas were used to determine the likely origins/destinations of this traffic. Only a selection of turning movements were used to ensure that trips were distributed along the most likely routes i.e. to avoid u-turning and routes with longer journey times.
- 8.5.14 To derive the 2021, 2026 and 2041 future year scenarios for assessment, traffic associated with businesses accessed via Wolseley Drive was removed from the network in 2012. The remaining network flows were then factored to the appropriate future year, and in the case of the future baseline flows, the traffic associated with Wolseley Drive was then re-applied to the network. This approach assumed no growth in traffic from Wolseley Drive between the 2012 baseline and future year baseline scenarios. In the Proposed Scheme future year scenarios, the Proposed Scheme traffic (construction or operation) was added to the network to replace traffic associated with the existing businesses on Wolseley Drive.

## Castle Bromwich and Bromford (CFA25) future baseline

### *Key future baseline issues*

- 8.5.15 The key transport changes in relation to the Castle Bromwich and Bromford area are expected to relate to general background growth in traffic flows, with an estimated 48% growth in traffic in the area between 2012 and 2041, irrespective of the Proposed Scheme. Changes to the highway network to alleviate and manage congestion at the A452 Chester Road and the M6 (between Junction 5 and 8), as discussed under the 'Transport Assumptions Supply' section below, are expected to be delivered by 2015, whilst changes are also expected in regards to the pedestrian and cycling network within the area over the same period.

- 8.5.16 No changes are expected to the strategic and local rail network, bus and coach services, taxi provision, the canal network or parking supply within the Castle Bromwich and Bromford area. Furthermore, there are currently no public transport interchanges or equestrian routes within the Castle Bromwich and Bromford area and this is not expected to change in the future baseline.

*Land use assumptions*

- 8.5.17 There are no major committed developments or land use changes proposed within the Castle Bromwich and Bromford area. However, the future baseline assessments do include for traffic growth as a result of forecast growth in housing and employment, which has been obtained from TEMPRO growth rates, which provides a robust assessment.
- 8.5.18 The following planning applications have been approved within the area:
- Plot 5 Prologis Park: Full planning permission (2012/06220/PA) for the erection of an employment building for B8 (storage and distribution) use, associated access, parking, drainage and landscaping.
  - Incinerator Bottom Ash Processing Facility, Tameside Drive: Full planning permission (2012/00236/PA) for the improvements to the Castle Bromwich Incinerator Bottom Ash (IBA) Processing Facility, including construction of a concrete ground slab, concrete drainage lagoon and sumps, relocated glass recycling bays and improved internal access road.
  - Former Amber Windows Site, Bromford Lane: Full planning permission (2011/05335/PA) for the erection of a residential development comprising of 42 flats, with associated car parking, access roads, footpaths, bin stores and boundary treatments.
- 8.5.19 The Draft Emerging Birmingham Development Plan Options Consultation document does not identify any key development sites within the area, however it does identify that the number of households in Birmingham will increase by around 80,000 between 2012 and 2031.
- 8.5.20 No key development sites have been identified within the area in the Draft Solihull Local Plan. However the plan does identify a projected housing growth of 14,000 households (between 2006 and 2028).
- 8.5.21 To develop the future baseline conditions for the Castle Bromwich and Bromford area network, TEMPRO (NTEM dataset 6.2) adjusted National Transport Model (AF09) growth factors were utilised for 2021, 2026 and 2041. Table 8-297 shows the resultant background traffic growth factors employed between the 2012 baseline and 2021, 2026 and 2041 forecast years within the traffic modelling.



Table 8-297: Traffic growth factors (TEMPRO)

Period	AM	PM
2012 – 2021	1.169	1.168
2012 - 2026	1.284	1.281
2012 - 2041	1.476	1.468

### *Transport supply assumptions*

- 8.5.22 Minimal changes are expected in the future baseline transport supply conditions within the Castle Bromwich and Bromford area, and they are expected to be limited to the highway and pedestrian and cycle networks. Table 8-298 summarises committed changes to the transport network in the future case.

Table 8-298: Future baseline transport supply conditions

Transport supply	Scheme	Delivery date
Highway Network	M6 Managed Motorway (Junctions 5 to 8)	April and June 2014
	A452 Chester Road Upgrades	Late 2014
Strategic Rail Network	No changes	N/A
Local Rail Network	No changes	N/A
Local Bus/Coach services	No changes	N/A
Public Transport Interchanges	No changes	N/A
Pedestrian and Cycle Network	A452 Chester Road Upgrades	Late 2014
Equestrians	No changes	N/A
Taxis	No changes	N/A
Canals and Waterways	No changes	N/A
Parking	No changes	N/A

### **Strategic and local road network**

- 8.5.23 Committed changes to the highway network within the Castle Bromwich and Bromford area concern upgrades to the strategic highway network, which includes the M6 between Junction 5 (Castle Bromwich) and Junction 8 (M6/M5 interchange) as part of the Highways Agency's 'Managed Motorways' programme. The 'Managed Motorways' programme involves the installation of hard shoulder running and variable speed limits, in order to provide additional capacity, reduce congestion and improve journey time reliability.
- 8.5.24 Improvements are also planned for the A452 Chester Road as part of the A452 Chester Road Access Improvements scheme, between Junction 5 of the M6 Junction in the south and the B4148 Tyburn Road in the north. The proposals are designed to alleviate heavy congestion in the peak hours along this corridor, and include the following:

- Widening of the A452 Chester Road to three lanes in both directions, between A38 Kingsbury Road and A47 Parkway;
- Widening of the A452 Chester Road approach to the M6 Junction 5 roundabout, from two to three lanes;
- Widening of the A38 Kingsbury Road entry and exit to the roundabout, where it meets A452 Chester Road; and
- Capacity improvements at the A452 Chester Road/Tyburn Road/Eachelhurst Road roundabout (widening circulatory), the A452 Chester Road/Fort Parkway roundabout (increasing the size) and the M6 Junction 5 roundabout (widening and part-signalisation).

### **Pedestrian and cycle network**

- 8.5.25 As part of the A452 Chester Road Access Improvements scheme, improvements will also be made to the local pedestrian and cycle environment, between the A452 Chester Road/Tyburn Road/Eachelhurst Road roundabout and the roundabout at Junction 5 of the M6. This will include improved pedestrian facilities, with the replacement of zebra crossings by signalised crossings, and additional cycling facilities in the form of shared-use footways and toucan crossings, improving linkages to other routes.

### *Strategic and local road network traffic flows*

- 8.5.26 The forecast changes in future baseline traffic flows for the strategic road network within the Castle Bromwich and Bromford area are summarised in the following tables. Only those links that are likely to be affected by the construction and/or operation of the Proposed Scheme are shown. The largest absolute changes in the future baseline are expected on the M6, the A452 Chester Road and the A38 Tyburn Road. The percentage change in flows in 2021, 2026 and 2041, relative to 2012, are commensurate with the growth factors shown in Table 8-297.

Table 8-299: Strategic road network future baseline flows (vehicles) - AM peak (08:00-09:00)

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
A452 Chester Road between Marshborok Rd and B4148 Tyburn Rd	NB	876	75	24%	1024	88	28%	1125	96	31%	1293	111	36%
	SB	1185	96	33%	1386	112	38%	1522	123	42%	1750	141	49%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	1379	83	41%	1613	97	31%	1771	107	34%	2036	123	39%
	SB	1544	163	30%	1805	191	35%	1983	209	38%	2279	241	44%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	2166	265	42%	2533	310	49%	2781	340	53%	3197	391	61%
	SB	1814	242	35%	2121	283	41%	2329	311	45%	2678	357	51%
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	700	72	21%	819	84	24%	899	92	27%	1033	106	31%
	WB	887	77	25%	1037	90	29%	1139	99	32%	1309	114	36%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	998	148	28%	1167	173	32%	1281	190	36%	1473	218	41%
	WB	1288	159	36%	1506	186	42%	1654	204	46%	1901	235	53%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	842	118	23%	985	138	27%	1081	152	30%	1243	174	35%
	WB	1201	161	33%	1404	188	39%	1542	207	43%	1773	238	49%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	788	129	25%	921	151	29%	1012	166	32%	1163	190	36%
	WB	1478	191	46%	1728	223	54%	1898	245	59%	2182	282	68%
A38 Tyburn Road between Wheelwright Rd and Abbots Rd)	EB	1232	103	39%	1441	121	45%	1582	132	49%	1819	152	57%
	WB	1645	268	51%	1924	313	60%	2112	344	66%	2428	396	76%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	629	48	20%	736	56	23%	808	62	25%	928	71	29%
	SB	841	52	26%	983	61	31%	1080	67	34%	1241	77	39%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	982	79	31%	1148	92	36%	1261	101	39%	1450	117	45%
	SB	1167	121	36%	1365	141	43%	1499	155	47%	1723	179	54%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	1597	62	50%	1867	73	58%	2051	80	64%	2357	92	74%
	SB	1212	50	38%	1418	59	44%	1557	65	49%	1789	74	56%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	907	63	19%	1061	74	22%	1165	81	24%	1339	93	28%
	SB	868	52	18%	1015	61	21%	1115	67	23%	1281	77	27%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	907	63	19%	1061	74	22%	1165	81	24%	1339	93	28%
	SB	868	52	18%	1015	61	21%	1115	67	23%	1281	77	27%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	630	84	18%	737	98	20%	809	108	22%	930	124	26%
	WB	1426	158	40%	1667	185	46%	1831	203	51%	2105	233	58%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	637	103	18%	745	120	21%	818	132	23%	940	152	26%
	WB	1035	105	29%	1210	123	34%	1329	135	37%	1528	155	42%
M6 between M42 slip roads and Junction 5	EB	4988	1550	89%	5833	1812	104%	6405	1990	114%	7363	2288	131%
	WB	5255	1565	94%	6145	1830	110%	6748	2010	120%	7757	2310	139%
M6 between Junction 5 and Junction 6	EB	3868	732	69%	4523	856	73%	4967	940	81%	5710	1081	93%
	WB	4378	942	78%	5119	1102	83%	5622	1210	91%	6463	1391	105%
M6 Junction 5 Onslip	EB	874	177	26%	1022	207	31%	1122	227	34%	1290	261	39%
M6 Junction 5 Off slip	WB	833	189	25%	974	221	29%	1070	243	32%	1230	279	37%

Table 8-300: Strategic road network future baseline flows (vehicles) - PM peak (17:00-18:00)

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1254	59	35%	1464	69	41%	1607	76	45%	1841	87	51%
	SB	980	55	27%	1145	64	32%	1256	71	35%	1439	81	40%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	1794	45	54%	2095	53	40%	2299	58	44%	2633	66	51%
	SB	1242	112	24%	1450	131	28%	1592	144	31%	1823	164	35%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	1943	182	37%	2269	212	44%	2490	233	48%	2852	267	55%
	SB	1615	147	31%	1886	172	36%	2069	188	40%	2370	216	46%
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	733	42	22%	856	49	26%	939	54	28%	1076	62	32%
	WB	756	60	21%	883	70	25%	969	77	27%	1110	88	31%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	1430	119	40%	1670	139	46%	1832	152	51%	2099	175	58%
	WB	1243	110	35%	1451	128	40%	1593	141	44%	1824	161	51%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	800	75	22%	934	88	26%	1025	96	28%	1174	110	33%
	WB	986	86	27%	1151	100	32%	1263	110	35%	1447	126	40%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	1345	134	42%	1570	156	49%	1723	172	54%	1974	197	62%
	WB	942	97	29%	1100	113	34%	1207	124	38%	1383	142	43%
A38 Tyburn Road between Wheelwright Rd and Abbots Rd)	EB	1232	103	39%	1439	120	45%	1579	132	49%	1809	151	57%
	WB	1415	168	44%	1652	196	52%	1813	215	57%	2077	247	65%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	1092	50	34%	1275	58	40%	1399	64	44%	1603	73	50%
	SB	560	33	18%	654	39	20%	718	42	22%	822	48	26%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1304	115	41%	1522	134	48%	1671	147	52%	1914	169	60%
	SB	970	72	30%	1133	84	35%	1243	92	39%	1424	106	44%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	1467	36	46%	1712	42	54%	1879	46	59%	2152	52	67%
	SB	1569	47	49%	1832	55	57%	2011	61	63%	2303	70	72%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	918	33	19%	1072	39	22%	1176	42	25%	1347	48	28%
	SB	918	27	19%	1072	32	22%	1176	35	25%	1347	40	28%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	918	33	19%	1072	39	22%	1176	42	25%	1347	48	28%
	SB	918	27	19%	1072	32	22%	1176	35	25%	1347	40	28%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	923	35	26%	1078	41	30%	1183	45	33%	1355	51	38%
	WB	973	94	27%	1136	110	32%	1247	120	35%	1428	138	40%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	715	39	20%	835	46	23%	916	50	25%	1049	57	29%
	WB	874	69	24%	1020	81	28%	1120	88	31%	1283	101	36%
M6 between M42 slip roads and Junction 5	EB	6022	1240	109%	7031	1448	128%	7717	1589	140%	8839	1820	161%
	WB	4567	1034	83%	5332	1207	97%	5852	1325	106%	6703	1518	122%
M6 between Junction 5 and Junction 6	EB	4902	533	88%	5723	622	93%	6281	683	102%	7195	782	117%
	WB	3515	529	64%	4104	618	68%	4504	678	74%	5159	776	85%
M6 Junction 5 Onslip	EB	874	91	26%	1020	106	30%	1120	117	33%	1283	134	38%
M6 Junction 5 Off slip	WB	981	124	29%	1145	145	34%	1257	159	38%	1440	182	43%

- 8.5.27 The Proposed Scheme is not forecast to impact on the operation of junctions on the strategic road network, either during the construction or operation phases. Traffic impacts have, therefore, been considered on a link basis only.
- 8.5.28 The forecast changes in future baseline traffic flows for the local road network within the Castle Bromwich and Bromford area are summarised in Table 8-301. Only those links that are likely to be affected by the construction and/or operation of the Proposed Scheme are shown. The highest absolute changes in the future baseline are expected on Newport Road and Coleshill Road (east of the A4040 Bromford Lane). For all links, the percentage change in future baseline flows, from 2012, is forecast to be commensurate with the traffic growth factors shown in Table 8-297.

Table 8-301: Local road network future baseline flows (vehicles) - AM peak (08:00-09:00)

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	337	27	10%	394	32	12%	433	35	13%	497	40	15%
	WB	978	56	27%	1144	65	32%	1256	72	35%	1444	83	40%
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	331	15	29%	387	18	34%	425	19	37%	489	22	42%
	WB	570	17	50%	667	20	58%	732	22	64%	841	25	73%
Langley Drive	NB	33	3	3%	38	3	3%	42	3	4%	48	4	4%
	SB	15	2	1%	17	2	2%	19	2	2%	22	3	2%
Tameside Drive between Orton Way and Langley Drive	EB	137	11	11%	161	12	12%	177	14	14%	203	16	16%
	WB	62	8	5%	73	9	6%	80	10	6%	92	11	7%
Tameside Drive between Langley Dr and A452 Chester Rd	EB	169	13	13%	197	15	15%	217	17	17%	249	19	19%
	WB	76	10	6%	89	11	7%	98	12	8%	113	14	9%
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1105	68	31%	1292	80	36%	1419	87	39%	1631	100	45%
	WB	943	60	26%	1103	70	31%	1211	77	34%	1392	89	39%
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	182	9	14%	212	10	16%	233	11	18%	268	13	21%
	WB	129	9	10%	151	10	12%	165	11	13%	190	13	15%
B4118 Water Orton Road between Mytton Road and B4119 Chester Rd	NEB	515	8	40%	602	9	46%	661	10	51%	760	12	58%
	SWB	539	13	41%	630	15	48%	692	16	53%	795	19	61%
Bromford Road between	EB	441	21	34%	516	24	40%	566	27	44%	651	31	50%



Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
Farnhurst Road and Bromford Drive	WB	721	18	55%	843	22	65%	926	24	71%	1064	27	82%
B4114 Coleshill Road between Newport Road and Bromford Road	EB	751	59	49%	878	69	57%	964	76	63%	1109	87	72%
	WB	1134	91	74%	1326	106	87%	1456	117	95%	1674	134	109%
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	309	40	24%	361	47	28%	397	51	31%	456	59	35%
	SB	588	49	45%	688	57	53%	755	63	58%	868	72	67%

Table 8-302: Local road network future baseline flows (vehicles) - PM peak (17:00-18:00)

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	604	16	18%	705	19	21%	774	21	23%	887	23	26%
	WB	410	29	11%	479	34	13%	525	37	15%	602	43	17%
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	467	11	41%	545	13	47%	598	14	52%	685	16	60%
	WB	332	17	29%	388	20	34%	425	22	37%	487	25	42%
Langley Drive	NB	9	1	1%	11	1	1%	12	1	1%	14	1	1%
	SB	29	1	3%	33	2	3%	37	2	3%	42	2	4%
Tameside Drive between Orton Way and Langley Drive	EB	26	5	2%	30	5	3%	33	6	3%	38	7	3%
	WB	90	6	7%	105	7	8%	116	8	9%	133	9	10%
Tameside Drive between Langley Dr and A452 Chester Rd	EB	35	6	3%	41	7	4%	45	7	4%	51	8	4%
	WB	118	8	9%	138	9	11%	151	10	12%	173	11	13%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio	All vehicles	HGV	VC ratio
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1138	26	32%	1329	30	37%	1458	33	41%	1670	38	46%
	WB	1044	48	29%	1219	56	34%	1338	62	37%	1532	70	43%
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	162	7	12%	189	8	15%	207	9	16%	237	10	18%
	WB	109	4	8%	127	5	10%	139	5	11%	159	6	12%
B4118 Water Orton Road between Mytton Road and B4119 Chester Rd	NEB	524	8	40%	612	10	47%	672	11	52%	770	12	59%
	SWB	536	13	41%	626	15	48%	687	17	53%	787	19	61%
Bromford Road between Farnhurst Road and Bromford Drive	EB	539	11	41%	629	13	48%	690	14	53%	791	16	61%
	WB	461	19	35%	538	23	41%	591	25	45%	677	28	52%
B4114 Coleshill Road between Newport Road and Bromford Road	EB	1171	61	77%	1367	71	89%	1501	78	98%	1719	90	112%
	WB	883	59	58%	1031	69	67%	1131	76	74%	1296	87	85%
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	419	30	32%	489	35	38%	537	38	41%	615	44	47%
	SB	345	26	27%	403	30	31%	442	33	34%	506	38	39%

- 8.5.29 The Proposed Scheme is not forecast to impact on the operation of junctions on the local road network, either during the construction or operation phases. Traffic impacts have therefore been considered on a link basis only.

#### *Accidents and safety*

- 8.5.30 A full network safety analysis has been undertaken for 2012 in the baseline assessment. No safety problems have been identified for the future baseline network operation as a result of changes to the highway network or travel demands. The proposed future baseline scheme on the A452 Chester Road is likely to improve safety conditions, through the signalisation of two roundabouts and replacement of zebra crossings with signalised crossings. The Project Definition Document for Chester Road Improvements (BCC, 2011) identifies improved safety as a benefit of the scheme, noting that the changes to the A452 should, in particular, reduce the number of rear-end shunt accidents at this location.
- 8.5.31 However for the purpose of this report, the future baseline conditions for accidents and safety have been assumed to be the same as for the baseline assessment.

#### *Parking and loading*

- 8.5.32 There are no committed changes in the car parks or parking restrictions in the Castle Bromwich and Bromford area and, therefore, the parking facilities and parking restrictions in the future baseline assessment are assumed to be the same as those in the baseline assessment.

#### *Rail network*

- 8.5.33 There are no committed changes to the strategic rail network in the Castle Bromwich and Bromford area and, therefore, the conditions in the future baseline assessment are assumed to be the same as those in the baseline assessment.
- 8.5.34 Centro currently have aspirations for a number of local rail schemes within the West Midlands. The Camp Hill Chords scheme is particularly relevant to the Castle Bromwich and Bromford area.
- 8.5.35 The Camp Hill Chords scheme will provide for two new lines into Moor Street Station. These are:
- From Kings Norton, Kings Heath, Moseley; and
  - From Tamworth, Kingsbury, Castle Vale and Fort Parkway (passing through the Castle Bromwich area).
- 8.5.36 As part of the scheme, new passenger stations are proposed at Fort Dunlop, Bromford and Castle Vale.

8.5.37 These proposals would increase the range of services from Moor Street Station and potentially release some capacity at Birmingham New Street Station. Furthermore, they would also improve accessibility, by rail, for the Washwood Heath Depot site.

8.5.38 Centro are currently bidding for funding for the Camp Hill Chords scheme.

#### *Local bus and coach services*

8.5.39 The West Midlands Local Transport Plan outlines future aspirations for bus rapid transit from Birmingham City Centre to Birmingham Airport. This rapid transit scheme will serve Birmingham City Council's 'Big City Plan' proposed major growth, development and regeneration sites in the city centre, Eastside, Meadway, and Bordesley Park; Birmingham Business Park and the NEC; and Birmingham Airport.

8.5.40 Through providing connectivity between Birmingham City Centre and Birmingham Airport, the rapid transit scheme would offer high levels of accessibility along the eastern corridor of Birmingham. This service would run through the Castle Bromwich and Bromford area and, therefore, be of benefit to people accessing the proposed stations at Curzon Street and Birmingham Interchange.

#### *Public transport interchanges*

8.5.41 There are no major public transport interchange facilities or committed proposals for public transport interchange facilities in the Castle Bromwich and Bromford area.

#### *Pedestrians, cyclists and equestrians*

8.5.42 No further changes are expected to the existing pedestrian and cycle routes in the Castle Bromwich and Bromford area, beyond those referenced in the 'Transport Supply Assumptions' section, which relate to the A452 Chester Road Access Improvements scheme. In the future baseline, there are no changes expected to the baseline pedestrian and cyclist flows.

8.5.43 The Government has recently announced that a total of £77 million will be divided between Birmingham, Bristol, Cambridge, Leeds, Manchester, Newcastle, Norwich and Oxford as part of the Cycle City Ambition Grant, to make roads safe for cyclists. Birmingham City Council will receive £17 million of this funding, between 2013 and 2015. The funding will be used to improve 95kilometres of existing route and 115kilometres of new routes within the city. This is likely to include improvements to the A47 and the Birmingham and Fazeley Canal towpath, in order to improve cycling conditions for cyclists along these routes.

8.5.44 There are no identified equestrian facilities in the Castle Bromwich and Bromford area.

### *Taxis*

- 8.5.45 There are no committed changes in the arrangements or facilities for taxis in the Castle Bromwich and Bromford area and, therefore, the taxi arrangements and facilities in the future baseline assessment are assumed to be the same as those in the baseline assessment.

### *Waterways and canals*

- 8.5.46 There are no committed changes to navigable waterways in the Castle Bromwich and Bromford area.

### *Air transport*

- 8.5.47 Birmingham Airport is located to the south of the Castle Bromwich and Bromford area and is included in the Birmingham Interchange and Chelmsley Wood area section of this report.

## **Castle Bromwich and Bromford (CFA25) Proposed Scheme construction description**

- 8.5.48 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that passes through the Castle Bromwich and Bromford area. This area includes the construction of a viaduct over the River Tame, realignment of the River Tame through the Park Hall Nature Reserve and construction/boring of Bromford Tunnel.
- 8.5.49 The proposed Bromford Tunnel, which forms the key construction feature for the Castle Bromwich and Bromford area, would initially be in a cutting with retaining walls, going beneath ground at the eastern tunnel portal, which would be situated east of A452 Chester Road. The tunnel would pass below the A452 Chester Road, under the River Tame, the M6, Chillinghome Road and Bromford Drive. The route (still in tunnel) would leave the Castle Bromwich and Bromford area at Bromford Drive, and pass into the Washwood Heath to Curzon Street (CFA26) to the west.
- 8.5.50 Traffic and transport impacts within the Castle Bromwich and Bromford area will arise from a combination of the following:
- removal of excavated material (particularly associated with tunnel boring);
  - delivery of construction materials;
  - worker activity; and
  - disruption to rail services through rail possessions.

- 8.5.51 The construction period for the whole route is programmed for 2017 to 2026. The base year for assessment of construction impacts has been chosen at 2021. The forecast peak construction activities have then been overlaid on 2021, with, as relevant, overlapping activities (in both area of importance and timing) considered in combination.

### *Construction activities*

- 8.5.52 The key locations for the construction activities described within the Castle Bromwich and Bromford area are as follows:

- Water Orton;
- Dunlop Channel;
- Park Hall Nature Reserve (River Tame);
- Plants Brook; and
- Castle Bromwich Business Park (East Tunnel Portal).

- 8.5.53 Construction traffic will also be generated from worksites in the adjoining areas, some of which will pass through Castle Bromwich and Bromford. Therefore, external traffic generated from these worksites, passing through the Castle Bromwich and Bromford area in the peak months identified, has also been accounted for within the construction assessment

- 8.5.54 The key activities within the Castle Bromwich and Bromford area will be focused upon demolition, earthworks, structures and rail infrastructure fit out, a short summary of these key activities is provided below:

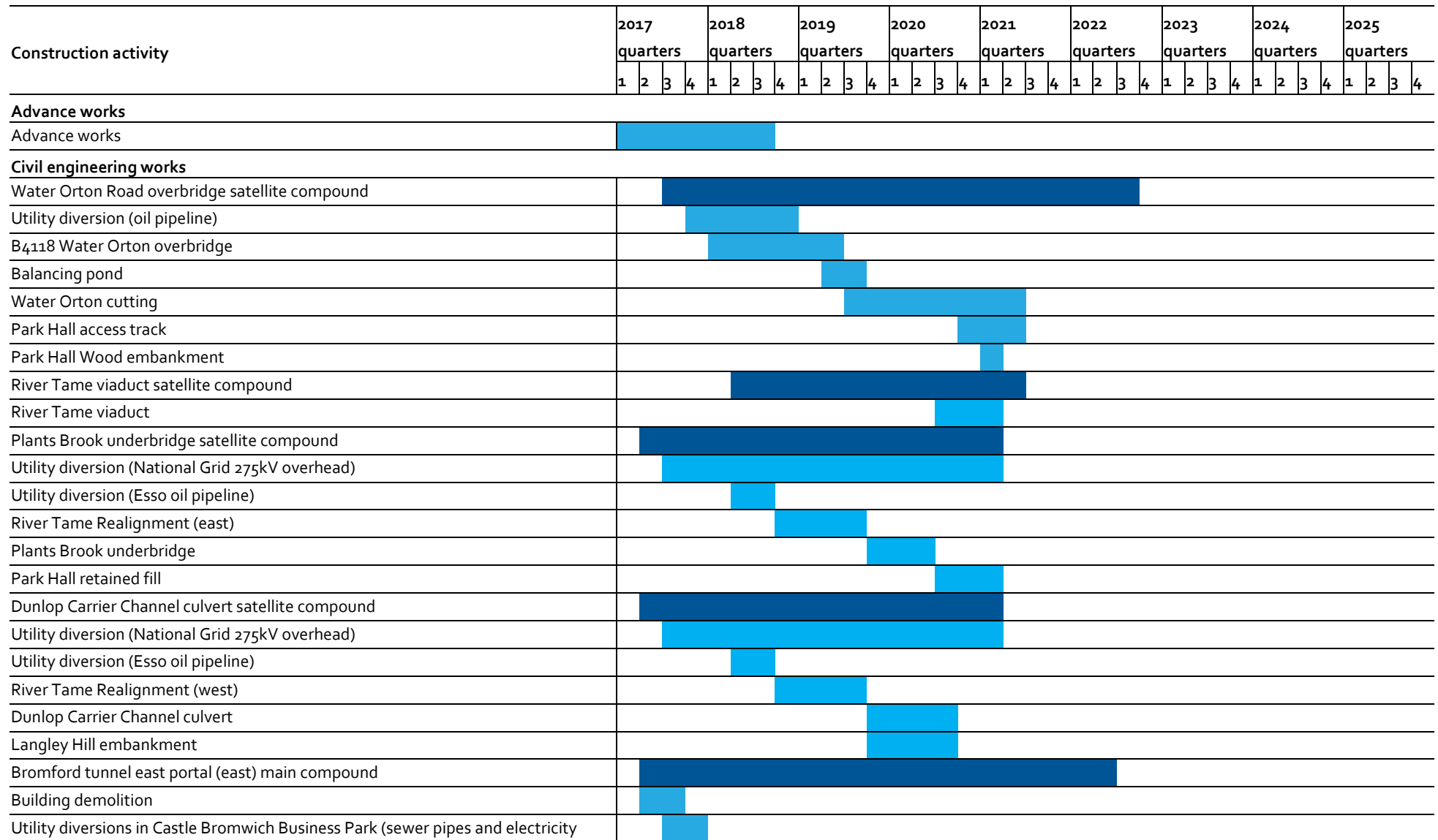
- Demolition: it is anticipated that the seven structures and eight buildings in the area will require demolition as a result of the Proposed Scheme, which will require the removal of materials.
- Earthworks: major earthworks in the area would include the deep cut under the B4118 Birmingham Road, the River Tame (Park Hall) diversion and the excavation of Bromford Tunnel at the eastern portal.
- Structures: viaducts or road bridges would be constructed at the B4118 Birmingham Road (overbridge), Park Hall Nature Reserve (River Tame Viaduct), Plants Brook (underbridge) and Dunlop Channel (underbridge). Furthermore, sections of the Proposed Scheme will be delivered in excavated cuttings or raised on embankments, this includes Park Hall (cutting), south of the Birmingham and Derby railway, River Tame crossing (embankment) and at Castle Bromwich Business Park (cutting).
- Rail Infrastructure Fit Out: track, overhead line and communications equipment and power supply works would be completed throughout the area.

- 8.5.55 The construction assessment considers the traffic and transport impacts in three peak months of construction activity, based on the proposed phasing of the works. The peak months have been identified as Months 22 (2018 Quarter 4), 27 (2019 Quarter 1) and 36 (2019 Quarter 4). In Months 22 and 27 there will be six operational compounds, and in Month 36 there will be five compounds that will be in operation.

*Compounds and construction sites*

- 8.5.56 Details of the construction phasing are provided above and the main construction works and the time periods when each compound is operational are summarised below in Figure 8-17.

Figure 8-17: Castle Bromwich and Bromford (CFA25) construction compound phasing





Construction activity	2017				2018				2019				2020				2021				2022				2023				2024				2025			
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Castle Bromwich retained cut (east)																																				
Balancing ponds and associated drainage																																				
Castle Bromwich auto-transformer station slab base and infrastructure																																				
Bromford tunnel (dismantling of tunnel boring machine)																																				
Bromford tunnel east portal (west ) satellite compound																																				
Utility diversions in Castle Bromwich Business Park (gas mains)																																				
Utility diversion/strengthening above tunnel																																				
Castle Bromwich retained cut (west)																																				
Bromford tunnel east portal																																				
Bromford tunnel east portal plant house																																				
Bromford tunnel preparation and finishing works																																				
Rail infrastructure and systems works																																				
Rail systems installation																																				
Castle Bromwich auto-transformer station satellite compound																																				
Castle Bromwich auto-transformer station installation																																				
Bromford tunnel east portal building satellite compound																																				
Bromford Tunnel east tunnel portal and headhouse fit-out																																				
Commissioning																																				
Commissioning (until end 2026)																																				
Key																																				



Construction works



Compound duration

- 8.5.57 The Castle Bromwich and Bromford area will hold one main construction compound and five temporary satellite site compounds. The location of the construction compounds is shown on CT-05-135b to CT-05-139a, Volume 2, Map Book 25 along with proposed HGV access routes (dashed green lines) that will be used to access the construction compounds.
- 8.5.58 The main construction compound will be located at Castle Bromwich Business Park, at the East Tunnel Portal. This site will be used for core project management (engineering, planning and construction delivery) and commercial and administrative staff.
- 8.5.59 The remaining five sites comprise satellite compounds, and will be smaller in size than the main compound. These will provide facilities and parking for a limited number of staff and provide local storage for plant and materials. Three satellite offices will be located and accessed off the B4118 Birmingham Road; another will be located adjacent to the Dunlop Channel culvert and is accessed from maintenance roads associated with the M6 and the A452 Chester Road, whilst the western-most satellite office will be located to the east of the main site office at Castle Bromwich Business Park.
- 8.5.60 Table 8-303 summarises the anticipated average and peak workforce to be required at each construction compound.

Table 8-303: Castle Bromwich and Bromford assumed workforce at construction sites

Compound type	Location	Assumed daily workforce per site for duration with busy vehicle movements	
		Average	Peak
satellite compound	Water Orton cutting satellite office, off B4118 Birmingham Road	190	285
satellite compound	River Tame viaduct satellite site, Water Orton Road	60	90
satellite compound	Plants Brook underbridge satellite site	20	30
satellite compound	Dunlop Channel underbridge satellite site	20	30
main compound	East portal (east) satellite site, Castle Bromwich Business Park, Tameside Drive	60	90
satellite compound	East portal (west) main compound, Castle Bromwich Business Park, Langley Drive	20	30

8.5.61 Typical vehicle trip generation for construction site compounds in the Castle Bromwich and Bromford area are shown in Table 8-304. The duration of when there will be busy transport activity at each site is also shown in Table 8-304. This represents the periods when the construction traffic flows will be greater than 50% of the peak flows.

8.5.62 Also shown is the estimated number of daily vehicle trips during the peak month of activity, the lower end of the range shows the average number of trips during the busy months and the upper end the peak flows. The assessment scenario has assumed the peak month for the combination of activities, i.e. not necessarily the peak activity at each individual site.

Table 8-304: Typical vehicle trip generation for construction site compounds in the Castle Bromwich and Bromford area

Compound type	Compound name	Access to/from compound	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite site	B4118 Water Orton Road overbridge	B4118 Birmingham Road	Q3 2018	4 years and 6 months	44	45-65	20-35
Satellite site	River Tame viaduct	Main access - B4118 Birmingham Road,  Secondary access - A452 Chester Road/Tameside Drive	Q2 2018	3 years and 3 months	8	45 - 60	20- 20
Satellite site	Plants Brook underbridge	Main access - B4118 Birmingham Road,  Secondary access - A452 Chester Road/Tameside Drive	Q2 2017	4	2	20 - 20	39 – 40

Compound type	Compound name	Access to/from compound	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Satellite site	Dunlop Carrier Channel culvert	Main access – Private Slip Road off M6 Eastbound,  Secondary access - B4118 Birmingham Road	Q2 2017	4	3	20 - 20	89 – 90
Main compound	Bromford tunnel east portal (east)	Main access – A452 Chester Road/ Tameside Drive	Q2 2017	5 years and 3 months	27	15 - 20	103 – 110
Satellite site	Bromford tunnel east portal (west)	Main access – A452 Chester Road/ Tameside Drive/ Langley Drive	Q2 2017	5 years and 3 months	26	30 - 60	130 – 200

### *Construction lorry routes*

8.5.63 Most of the routes will be used on an occasional basis, for activities that cannot be accessed via the main gate. Regular movements to and from the site compounds will access and egress the highway network from the main gate, as set out in Table 8-304, and will follow the routes described below. The assessment of construction impacts has assumed vehicles will access the compounds via the main gates.

8.5.64 Access routes to the main compound site (East Portal (west)) will be via the strategic road network, although some locations will be accessed via local roads. The following lorry routes are currently proposed to access the main site compound:

- M6 east (Junction 5) /A452 Chester Road/Tameside Drive (also linking to M42 for north and south); and
- M6 west (Junction 6) /A38/A47 Fort Parkway/A452 Chester Road from west and north (also linking to M5 for south).

- 8.5.65 Satellite construction site compounds will generally be more remote and operational for shorter durations. They will be accessible via internal site access routes and A, B or minor unclassified roads. Local routes for lorries are set out below:
- Water Orton cutting satellite office: B4118 Birmingham Road, A446 Lichfield Road and/or M42 Junction 10;
  - River Tame Viaduct satellite office: B4118 Birmingham Road, B4114 Bradford Road, Newport Road and then M6 Junction 5;
  - Plants Brook Underbridge satellite office: B4118 Birmingham Road, B4114 Bradford Road, Newport Road and then M6 Junction 5;
  - Dunlop Channel Underbridge satellite office: Maintenance access roads at M6 Junction 5 on-slip and A452 eastbound; and
  - East Tunnel Portal (east) satellite office: Castle Bromwich Business Park, Tameside Drive, A452 Chester Road and then M6 Junction 5.
- 8.5.66 From the M6 Junction 5, lorries (from satellite compounds) will travel east (connecting with the M42) or continue to the A38 Tyburn Road and M6 Junction 6 to travel west along the M6.
- 8.5.67 In addition, temporary haul routes within the land required to construct the scheme (construction boundary) will be provided which will help to mitigate the impact on the wider network by providing a route for the movement of materials, workers and waste.

#### *Traffic management, road closures and diversions*

- 8.5.68 Generally closures are limited to short term interventions including overnight, off-peak or weekend periods. No permanent closures are expected in the Castle Bromwich and Bromford area.

#### *PRoW closures and diversions*

- 8.5.69 The impact on footpath (including roadside footways), cycleway and bridleway links due to the Proposed Scheme has been minimised, as far as possible, through the design process. Therefore no footpath links are expected to be affected during the construction of the Proposed Scheme.

### **Castle Bromwich and Bromford (CFA25) assessment of construction impacts**

#### *Key construction transport issues*

- 8.5.70 Construction of the Proposed Scheme in the Castle Bromwich and Bromford area will have temporary impacts which will include increased traffic demand associated with material movement and workers on a number of roads.

- 8.5.71 However, the reduction in traffic associated with the displacement of businesses, including UK Mail, to accommodate the proposed Washwood Heath Depot (located in the adjacent Washwood Heath to Curzon Street area (CFA26)), will offset the temporary and permanent traffic generation from the Proposed Scheme on some roads.
- 8.5.72 There are no temporary closures of roads and/or footpaths which will require diversion routes for users in the Castle Bromwich and Bromford area. Therefore, no impacts are expected in regards to pedestrian and cyclists or public transport users, with impacts limited to vehicular traffic.

*Strategic and local road network traffic flows*

- 8.5.73 During the construction of the Proposed Scheme there will be a number of roads on the strategic and local highway networks that will be affected by a temporary increase in traffic flows. No roads are expected to require diversions, as a result of the alignment of the Proposed Scheme, and, therefore, the overall impacts in the Castle Bromwich and Bromford area are expected to be temporary and limited.

*Strategic road network - links*

- 8.5.74 Table 8-305 and Table 8-306 summarise the change in flows expected in the AM peak (08:00-09:00) and PM peaks (17:00-18:00) arising from the construction of the Proposed Scheme. The changes in flow represent the maximum flows from the peak months of 30, 35 and 44 in order to present a robust assessment.

Table 8-305: Strategic road network construction traffic flows (vehicles) AM peak (08:00-09:00)

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1024	88	1024	88	0.0%	0.0%	28%	28%
	SB	1386	112	1385	112	0.0%	0.0%	38%	38%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	1613	97	1616	101	0.2%	3.7%	31%	31%
	SB	1805	191	1809	194	0.2%	1.9%	35%	35%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	2533	310	2537	325	0.2%	4.9%	49%	49%
	SB	2121	283	2135	298	0.6%	5.4%	41%	41%
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	819	84	817	84	-0.2%	-0.6%	24%	24%
	WB	1037	90	1031	93	-0.6%	3.1%	29%	29%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	1167	173	1166	173	-0.1%	0.0%	32%	32%
	WB	1506	186	1502	186	-0.3%	-0.1%	42%	42%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	985	138	987	141	0.2%	2.5%	27%	27%
	WB	1404	188	1404	192	-0.1%	1.8%	39%	39%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	921	151	923	154	0.2%	2.3%	29%	29%
	WB	1728	223	1724	227	-0.2%	1.5%	54%	54%
A38 Tyburn Road between Wheelwright Rd and Abbotts Rd)	EB	1441	121	1425	130	-1.1%	8.1%	45%	45%
	WB	1924	313	1927	326	0.2%	4.0%	60%	60%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	736	56	724	56	-1.5%	-0.5%	23%	23%
	SB	983	61	945	60	-3.9%	-2.1%	31%	30%

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1148	92	1137	104	-1.0%	12.7%	36%	36%
	SB	1365	141	1298	149	-4.9%	5.6%	43%	41%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	1867	73	1842	88	-1.4%	21.1%	58%	58%
	SB	1418	59	1328	70	-6.3%	18.1%	44%	41%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	1061	74	1049	74	-1.1%	0.0%	22%	22%
	SB	1015	61	1002	58	-1.3%	-3.8%	21%	21%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	1061	74	1049	74	-1.1%	0.0%	22%	22%
	SB	1015	61	1002	58	-1.3%	-3.8%	21%	21%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	737	98	749	113	1.7%	15.4%	20%	21%
	WB	1667	185	1669	200	0.1%	8.1%	46%	46%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	745	120	758	136	1.7%	12.6%	21%	21%
	WB	1210	123	1212	138	0.1%	12.2%	34%	34%
M6 between M42 slip roads and Junction 5	EB	5833	1812	5848	1833	0.3%	1.1%	104%	104%
	WB	6145	1830	6157	1852	0.2%	1.2%	110%	110%
M6 between Junction 5 and Junction 6	EB	4523	856	4523	856	0.0%	0.0%	73%	73%
	WB	5119	1102	5119	1102	0.0%	0.0%	83%	83%
M6 Junction 5 On slip	EB	1022	207	1040	230	1.8%	11.2%	31%	31%
M6 Junction 5 Off slip	WB	974	221	986	243	1.2%	10.2%	29%	29%



Table 8-306: Strategic road network construction traffic flows (vehicles) - PM peak (17:00-18:00)

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1464	69	1463	69	-0.1%	-0.1%	41%	41%
	SB	1145	64	1145	64	0.0%	0.0%	32%	32%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	2095	53	2097	55	0.1%	4.5%	40%	40%
	SB	1450	131	1452	133	0.2%	1.8%	28%	28%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	2269	212	2272	221	0.1%	4.2%	44%	44%
	SB	1886	172	1890	181	0.2%	5.6%	36%	36%
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	856	49	852	49	-0.4%	-0.2%	26%	25%
	WB	883	70	881	72	-0.2%	2.1%	25%	24%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	1670	139	1665	139	-0.3%	-0.1%	46%	46%
	WB	1451	128	1450	128	-0.1%	0.0%	40%	40%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	934	88	931	90	-0.3%	2.6%	26%	26%
	WB	1151	100	1152	103	0.1%	2.4%	32%	32%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	1570	156	1562	159	-0.5%	1.4%	49%	49%
	WB	1100	113	1100	116	0.1%	2.1%	34%	34%
A38 Tyburn Road between Wheelwright Rd and Abbotts Rd)	EB	1439	120	1434	126	-0.3%	4.9%	45%	45%
	WB	1652	196	1640	204	-0.7%	3.9%	52%	51%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	1275	58	1249	58	-2.0%	-1.0%	40%	39%
	SB	654	39	644	37	-1.5%	-4.0%	20%	20%

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1522	134	1471	141	-3.4%	5.0%	48%	46%
	SB	1133	84	1116	88	-1.5%	5.0%	35%	35%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	1712	42	1639	49	-4.3%	18.1%	54%	51%
	SB	1832	55	1800	59	-1.8%	7.2%	57%	56%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	1072	39	1048	39	-2.2%	0.0%	22%	22%
	SB	1072	32	1050	32	-2.1%	0.0%	22%	22%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	1072	39	1048	39	-2.2%	0.0%	22%	22%
	SB	1072	32	1050	32	-2.1%	0.0%	22%	22%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	1078	41	1080	50	0.3%	23.4%	30%	30%
	WB	1136	110	1138	119	0.2%	8.1%	32%	32%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	835	46	838	55	0.3%	21.0%	23%	23%
	WB	1020	81	1023	89	0.2%	11.1%	28%	28%
M6 between M42 slip roads and Junction 5	EB	7031	1448	7035	1463	0.1%	1.0%	128%	128%
	WB	5332	1207	5341	1221	0.2%	1.1%	97%	97%
M6 between Junction 5 and Junction 6	EB	5723	622	5723	622	0.0%	0.0%	93%	93%
	WB	4104	618	4104	618	0.0%	0.0%	68%	68%
M6 Junction 5 On slip	EB	1020	106	1027	123	0.6%	16.0%	30%	31%
M6 Junction 5 Off slip	WB	1145	145	1154	158	0.8%	9.2%	34%	34%

- 8.5.75 Table 8-305 and Table 8-306 show that in the AM and PM peak periods, the traffic generated on the strategic highway network will be negligible, with the construction workers assumed to arrive before the AM peak (08:00-09:00) and depart after the PM peak (17:00-18:00). Combined with the removal of traffic associated with UK Mail and other existing businesses from the Washwood Heath depot site from the network, it is anticipated that the construction of the Proposed Scheme will result in a reduction in traffic on most strategic network links in the Castle Bromwich and Bromford area. The maximum forecast increase in flow is an increase of 26 vehicles in the AM peak hour (08:00-09:00) on the M6 Junction 5 on-slip.

*Local road network - link assessment*

- 8.5.76 During the construction of the Proposed Scheme, there will also be a number of roads within the local road network that may be affected by a temporary increase in construction related traffic.
- 8.5.77 Table 8-307 and Table 8-308 summarise the change in flows expected in the AM peak (08:00-09:00) and PM peak (17:00-18:00), using the maximum flows from the peak months of 30, 35 and 44 in order to present a robust assessment.
- 8.5.78 Increases in total flows of greater than 2% have not been identified in the AM (08:00-09:00) and PM (17:00-18:00) peaks on local roads within the Castle Bromwich and Bromford area. The exception to this is Tameside Drive and Langleigh Drive, which will form the main route from the A452 Chester Road to the East Portal worksites, where construction of the Proposed Scheme will lead to increases in traffic flow of greater than 3%.

Table 8-307: Local road network construction traffic flows (vehicles) – AM peak (08:00-09:00)

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	394	32	393	32	-0.2%	-0.2%	12%	12%
	WB	1144	65	1140	65	-0.3%	-0.1%	32%	32%
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	387	18	386	18	-0.2%	0.0%	34%	34%
	WB	667	20	664	20	-0.4%	0.0%	58%	58%
Langley Drive	NB	38	3	42	7	9.2%	117.6%	3%	4%
	SB	17	2	21	6	20.5%	160.9%	2%	2%
Tameside Drive between Orton Way and Langley Drive	EB	161	12	162	16	1.1%	27.5%	12%	12%
	WB	73	9	76	13	3.7%	37.8%	6%	6%
Tameside Drive between Langley Dr and A452 Chester Rd	EB	197	15	204	22	3.6%	46.4%	15%	16%
	WB	89	11	96	18	7.9%	63.3%	7%	7%
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1292	80	1285	77	-0.5%	-3.5%	36%	36%
	WB	1103	70	1094	70	-0.8%	0.0%	31%	30%
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	212	10	212	10	0.0%	0.0%	16%	16%
	WB	151	10	151	10	0.0%	0.0%	12%	12%
B4118 Water Orton Road between Mytton Road and B4119 Chester Rd	NEB	602	9	603	10	0.2%	14.0%	46%	46%
	SWB	630	15	631	16	0.2%	8.6%	48%	49%
Bromford Road between Farnhurst Road and Bromford Drive	EB	516	24	496	18	-3.9%	-24.2%	40%	38%
	WB	843	22	815	20	-3.3%	-5.4%	65%	63%

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
B4114 Coleshill Road between Newport Road and Bromford Road	EB	878	69	866	64	-1.3%	-7.0%	57%	57%
	WB	1326	106	1310	106	-1.2%	-0.2%	87%	86%
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	361	47	361	48	0.0%	2.1%	28%	28%
	SB	688	57	688	58	0.0%	1.7%	53%	53%

Table 8-308: Local road network construction traffic flows (vehicles) – PM peak (17:00-18:00)

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	705	19	700	19	-0.8%	-0.5%	21%	21%
	WB	479	34	478	34	-0.1%	0.0%	13%	13%
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	545	13	543	13	-0.3%	0.0%	47%	47%
	WB	388	20	387	20	-0.2%	0.0%	34%	34%
Langley Drive	NB	11	1	13	4	21.5%	204.1%	1%	1%
	SB	33	2	36	4	7.0%	157.0%	3%	3%
Tameside Drive between Orton Way and Langley Drive	EB	30	5	32	8	6.8%	42.1%	3%	3%
	WB	105	7	107	10	1.1%	30.6%	8%	8%
Tameside Drive between Langley Dr and A452 Chester Rd	EB	41	7	45	11	11.6%	72.0%	4%	4%
	WB	138	9	142	14	3.4%	53.2%	11%	11%

Location	Direction	2021 baseline		2021 with HS2 construction traffic		With HS2 % change from 2021 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with HS2
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1329	30	1320	31	-0.7%	1.6%	37%	37%
	WB	1219	56	1217	55	-0.2%	-1.7%	34%	34%
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	189	8	189	8	0.0%	0.0%	15%	15%
	WB	127	5	127	5	0.0%	0.0%	10%	10%
B4118 Water Orton Road between Mytton Road and B4119 Chester Rd	NEB	612	10	613	11	0.1%	8.8%	47%	47%
	SWB	626	15	627	16	0.1%	5.5%	48%	48%
Bromford Road between Farnhurst Road and Bromford Drive	EB	629	13	596	13	-5.2%	0.0%	48%	46%
	WB	538	23	532	20	-1.1%	-10.4%	41%	41%
B4114 Coleshill Road between Newport Road and Bromford Road	EB	1367	71	1349	72	-1.4%	0.9%	89%	88%
	WB	1031	69	1027	67	-0.4%	-2.4%	67%	67%
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	489	35	486	36	-0.6%	1.9%	38%	37%
	SB	403	30	401	31	-0.4%	2.2%	31%	31%

### *Junction performance 2026*

#### *Strategic road network - junctions*

- 8.5.79 Increases in flows of greater than 2% have not been identified at any of the junctions on the strategic road network within the Castle Bromwich and Bromford area. Furthermore, only the A47 Fort Parkway (westbound) in the AM peak (08:00-09:00) and the M6 Junction 5 on slip in the PM peak (17:00-18:00) are expected to experience an increase in the volume to capacity ratio of equal to or greater than 1%. As such, no junctions are expected to experience a substantial impact in regards to capacity and operation. Therefore detailed junction modelling has not been undertaken.

#### *Local road network - junctions*

- 8.5.80 Increases in flows of greater than 2% have not been identified at any of the junctions on the local road network within the Castle Bromwich and Bromford area during construction, in either the AM peak or PM peak. Furthermore, only Tameside Drive is expected to experience an increase in the volume to capacity ratio of equal to or greater than 1% in the AM (08:00-09:00) or PM (17:00-18:00) peaks. As such, no junctions are expected to experience a substantial impact in relation to capacity and operation. Detailed junction modelling has therefore not been undertaken.

### *Accidents and Safety*

- 8.5.81 The baseline safety analysis identified five locations were identified which had experienced 9 or more Personal Injury Accidents over a three year period. These locations included the A452 Chester Road/A38 roundabout, the A38 Tyburn Road/A4040 Bromford Lane junction, the A47/A4040 Bromford Lane (Bromford Island) roundabout, the A4040 Bromford Lane/B4114 Washwood Heath Road junction and the M6 Junction 5 roundabout.
- 8.5.82 Changes in flows at these locations, resulting from the construction of the Proposed Scheme, are predicted to be small. The maximum daily increase in flows at any junction is predicted to be at the A452 Chester Road/Tameside junction, where a change of 1% is predicted. In addition, the future baseline highway improvements are expected to improve safety, particularly on the A452 Chester Road as part of the A452 Chester Road Access Improvements scheme. Therefore, the increases in traffic flows will not exacerbate existing accident concerns or create new problems.

### *Parking and loading*

- 8.5.83 The construction of the Proposed Scheme, and implementation of the eastern tunnel portal (east) and (west) compounds, will result in the permanent loss of approximately 200 car parking spaces at businesses in the vicinity of the eastern tunnel entrance portal, at Castle Bromwich Business Park. The businesses associated with the car parking spaces will be displaced, to facilitate the Proposed Scheme, and therefore the need for these spaces will no longer exist. There are no other impacts on parking during construction of the Proposed Scheme in the Castle Bromwich and Bromford area.

### *Rail*

- 8.5.84 The construction of the Proposed Scheme in the Castle Bromwich and Bromford area will require temporary possessions of existing rail infrastructure. The vast majority will be overnight possessions with occasional weekend closures.
- 8.5.85 Rail possessions will be agreed through close working with Network Rail, to ensure that disruption is minimised. Rail possessions will be limited, where practicable, to off-peak, weekend and short duration possessions, which will be planned to minimise disruption to rail users wherever possible. Rail replacement services will also be provided, if appropriate, when rail possessions are in place.
- 8.5.86 Overnight possessions will have minimal impact in the Castle Bromwich and Bromford area on the strategic and local rail network or users of local services.

### *Local bus and coach*

- 8.5.87 There are no specific construction activity impacts on local bus and coach services in the Castle Bromwich and Bromford area, and, therefore, no impacts on local bus and coach services due to construction activity are expected in this area.

### *Public transport interchanges*

- 8.5.88 There are no substantial public transport interchange facilities in the Castle Bromwich and Bromford area and, therefore, no impacts on public transport interchange facilities due to construction activity are expected in this area.

### *Pedestrians, cyclists and equestrians*

- 8.5.89 There are no PROWs, footways or cycling facilities requiring diversion or closure during construction of the Proposed Scheme in the Castle Bromwich and Bromford area. Furthermore, there are no equestrian routes in the Castle Bromwich and Bromford area. Therefore, the construction of the Proposed Scheme will not impact on pedestrians, cyclists and equestrians in the Castle Bromwich and Bromford area.



### *Taxis*

- 8.5.90 There will be no construction activity impacts on taxis in the Castle Bromwich and Bromford area, other than localised temporary changes to the highway network during construction which may affect taxi operations.

### *Waterways and canals*

- 8.5.91 No diversions or closures of navigable waterways or canals are required during construction. Therefore, there are no construction impacts on waterways and canals in the Castle Bromwich and Bromford area.

### *Air transport*

- 8.5.92 Birmingham Airport is located to the south of the Castle Bromwich and Bromford area and is included in the Birmingham Interchange and Chelmsley Wood section within this report.

### *Mitigation measures*

- 8.5.93 The engineering and construction design of the Proposed Scheme has been conceived, as such, to minimise the impacts during construction. The following measures have been included as part of the engineering design of the Proposed Scheme and will avoid, or reduce, impacts on transport users:
- any road closures will be restricted to overnights and weekends, where reasonably practicable;
  - construction materials and equipment will be transported along the haul road adjacent to the Proposed Scheme alignment, where possible, to reduce lorry movements on the public highway;
  - lorry routes for construction equipment and materials will be defined, to ensure only the most suitable roads are used.
- 8.5.94 HGV routeing, as far as possible, will be via the strategic road network, as described below and as shown on Maps TR-03-156b, TR-03-157 and TR-03-158A (Volume 5, Map Book 71):
- construction materials and equipment will be transported along the haul road adjacent to the Proposed Scheme alignment where possible to reduce lorry movements on the public highway;
  - lorry routes for construction equipment and materials will be defined to ensure only the most suitable roads are used. HGV routing as far as possible along the strategic road network;
  - surplus spoil material to be reused, wherever possible, along the alignment of the Proposed Scheme, which will reduce lorry movements on the public highway;
  - maintaining or re-providing access to properties and businesses adjacent to

the Proposed Scheme;

- off-site accommodation for site workers, with transport provided to transfer workers between the accommodation and worksites; and
- on site welfare facilities, to reduce daily travel by site workers.

8.5.95 The measures in the draft CoCP (see Volume 5: Appendix CT-003-000) will seek to reduce deliveries of construction materials and equipment, thus minimising construction lorry trip generation, especially during peak traffic periods. The draft CoCP will include HGV management and control measures.

8.5.96 The draft CoCP will also include clear controls on vehicle types, hours of site operation and routes for heavy goods vehicles, to reduce the impact of road based construction traffic. In order to achieve this, generic and site specific traffic management measures will be implemented during the construction of the Proposed Scheme on or adjacent to public roads, bridleways, footpaths and other PRoW affected, as necessary.

### **Castle Bromwich and Bromford (CFA25) Proposed Scheme operation description**

8.5.97 In the Castle Bromwich and Bromford area, the Proposed Scheme will run between the M6 and the A452 Chester Road, from the boundary with the Delta Junction area (CFA19), and will enter a tunnel to the east of the A452 Chester Road bridge over the M6, in what is currently the Castle Bromwich Business Park. The Proposed Scheme will remain in tunnel for the rest of its alignment through the Castle Bromwich and Bromford area.

8.5.98 No Proposed Scheme stations or depots will be located within the area, but roads within Castle Bromwich and Bromford will be used for trips accessing the proposed Curzon Street and Birmingham Interchange stations, and the proposed Washwood Heath Depot.

8.5.99 The Proposed Scheme through this area is shown on CT-06-135b to CT-06-139a, Volume 2, Map Book 25.

### ***Changes in demand 2026 and 2041***

8.5.100 The proposed Curzon Street station and the Washwood Heath Depot are located within the neighbouring Washwood Heath to Curzon Street area (CFA26). However, the access to the depot site sits on the boundary between the Castle Bromwich and Bromford and Washwood Heath to Curzon Street area (CFA26) areas and, as such, will form the main source of traffic generation associated with the Proposed Scheme in the Castle Bromwich and Bromford area. In addition, some traffic associated with Curzon Street station and the Birmingham Interchange station (in CFA24) will also originate from or pass through Castle Bromwich and Bromford.

- 8.5.101 The methodology for trip generation and distribution at the Washwood Heath Depot site is set out in the regional methodology section of the report for the West Midlands. Table 8-309 and Table 8-310 summarise the forecast trip generation associated with the depot site for all modes. The forecast trip generation is based on activities at the depot in 2041 and, for robustness, the same trip generation has been assumed for 2026. However, in 2026 the trip generation is expected to be less than presented below. The distribution of both vehicular and person trips are also expected to remain consistent over this period.

Table 8-309: Washwood Heath depot person trip generation (non-car modes) summary (2026 and 2041)

Time period	Car/LGV		Rail		Bus		Walk		Cycle		Total	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
AM peak (08:00-09:00)	35	0	1	0	5	0	2	0	1	0	44	0
PM peak (17:00-18:00)	0	32	0	1	0	5	0	1	0	1	0	40
Daily (weekday)	342	342	7	7	40	40	12	12	8	8	410	410

Table 8-310: Washwood Heath depot vehicle trip generation summary (2026 and 2041)

Time period	Cars/LGVs		Deliveries		Total	
	Arr	Dep	Arr	Dep	Arr	Dep
AM peak (08:00-09:00)	33	0	2	2	35	2
PM peak (17:00-18:00)	0	30	2	2	2	32
Daily (weekday)	319	319	20	20	339	339

- 8.5.102 The Washwood Heath Depot is described in more detail in the Washwood Heath to Curzon Street section of this report, but traffic generated by the depot site predominantly impacts upon roads in the Castle Bromwich and Bromford areas. The proposed depot site will result in the displacement of existing businesses, including UK Mail. The trip generation for the Washwood Heath depot is forecast to be less than the existing trip generation of the site (see Local Assessment Methodology) for more detail) and will reduce the number of trips on the highway network in the vicinity of the depot site access. In total, there is expected to be a reduction of 152 vehicles in the AM peak (08:00-09:00) and 147 vehicles in the PM peak (17:00-18:00) using Wolseley Drive with the operation of the Proposed Scheme.
- 8.5.103 The trip generation resulting from the proposed stations at Curzon Street and Birmingham Interchange is presented in the assessments for the Washwood Heath to Curzon Street area (CFA26) and Birmingham Interchange and Chelmsley Wood areas (CFA24) respectively. A proportion of the trips generated by the proposed stations will originate from, or pass through the Castle Bromwich and Bromford area.

- 8.5.104 Table 8-311 shows the proposed vehicle trip generation resulting from the proposed Washwood Heath depot, Curzon Street station and Birmingham Interchange station, which passes through Castle Bromwich and Bromford area.

Table 8-311: Trips from Curzon Street station (CFA26), Washwood Heath depot (CFA26) and Birmingham Interchange (CFA24) passing through the Castle Bromwich and Bromford area

Station/depot	2026			2041		
	AM 08:00-09:00	PM 17:00-18:00	Daily (weekday)	AM 08:00-09:00	PM 17:00-18:00	Daily (weekday)
Washwood Heath Depot (CFA26)	37	34	678	37	34	678
Curzon Street Station (CFA26)	4	6	66	6	8	100
Birmingham Interchange (CFA24)	45	87	809	84	166	1540

## Castle Bromwich and Bromford (CFA25) Proposed Scheme assessment of operation impacts

### *Key operation transport issues*

- 8.5.105 The Proposed Scheme will not require any changes to the highway network within the Castle Bromwich and Bromford area.
- 8.5.106 The Proposed Scheme will result in a reduction in forecast trip generation, compared to the future baseline, as existing developments that are currently accessed from Wolseley Drive, including UK Mail, will be displaced to accommodate the Washwood Heath Depot.
- 8.5.107 It is anticipated that the depot site will operate on a shift basis, and that the shift times will be arranged such that shift change over periods will avoid peak periods on the highway network. Therefore, the depot site is not forecast to result in impacts on the local highway and transport networks in the Castle Bromwich and Bromford area during the peak periods.

### *Local land uses*

- 8.5.108 The Proposed Scheme will require the acquisition of land at the Castle Bromwich Business Park. This will result in the permanent loss of approximately 200 private car parking spaces at businesses in the vicinity of the eastern tunnel entrance portal.
- 8.5.109 However, the displacement of the businesses associated with the car parking spaces, to facilitate the Proposed Scheme, will mean that the need for these spaces will no longer exist.

### Strategic and local road network traffic flows 2026

- 8.5.110 There are expected to be a number of roads within the highway network which will serve traffic generated by the Washwood Heath Depot, as well as the Curzon Street and Birmingham Interchange stations. However, when considered in relation to the traffic that is currently generated from existing businesses located on the site of the proposed depot, the impacts are expected to be negligible.

#### Strategic road network - links

- 8.5.111 This section summarises the increases in traffic on the strategic road network in 2026 as a result of the Proposed Scheme, together with the assessment of the impacts.
- 8.5.112 Table 8-312 and Table 8-313 present the anticipated traffic and volume to capacity ratios for the strategic road network following the opening of the Proposed Scheme in 2026, and compares this to the future baseline flows.

Table 8-312: Strategic road network 2026 future baseline and with the Proposed Scheme traffic (vehicles) – AM peak (08:00-09:00)

Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with HS2
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1125	96	1130	96	0.4%	0.0%	31%	31%
	SB	1522	123	1540	123	1.2%	0.0%	42%	43%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	1771	107	1776	107	0.3%	0.0%	34%	34%
	SB	1983	209	2002	209	1.0%	0.0%	38%	38%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	2781	340	2784	341	0.1%	0.2%	53%	54%
	SB	2329	311	2347	312	0.8%	0.2%	45%	45%
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	899	92	897	92	-0.2%	-0.7%	27%	27%
	WB	1139	99	1133	99	-0.5%	-0.3%	32%	31%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	1281	190	1281	190	-0.1%	0.0%	36%	36%
	WB	1654	204	1653	204	-0.1%	-0.1%	46%	46%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	1081	152	1080	151	-0.1%	-0.1%	30%	30%
	WB	1542	207	1541	207	-0.1%	-0.1%	43%	43%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	1012	166	1010	165	-0.2%	-0.1%	32%	32%
	WB	1898	245	1894	245	-0.2%	-0.1%	59%	59%
A38 Tyburn Road between Wheelwright Rd and Abbots Rd)	EB	1582	132	1557	130	-1.6%	-1.7%	49%	49%
	WB	2112	344	2103	345	-0.4%	0.2%	66%	66%

Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with HS2
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	808	62	795	61	-1.5%	-0.5%	25%	25%
	SB	1080	67	1042	65	-3.5%	-2.1%	34%	33%
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1261	101	1236	102	-2.0%	0.2%	39%	39%
	SB	1499	155	1426	151	-4.8%	-2.5%	47%	45%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	2051	80	2009	81	-2.0%	0.9%	64%	63%
	SB	1557	65	1470	60	-5.6%	-6.8%	49%	46%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	1165	81	1160	81	-0.4%	0.0%	24%	24%
	SB	1115	67	1101	64	-1.2%	-3.8%	23%	23%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	1165	81	1160	81	-0.4%	0.0%	24%	24%
	SB	1115	67	1101	64	-1.2%	-3.8%	23%	23%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	809	108	807	109	-0.2%	0.7%	22%	22%
	WB	1831	203	1826	204	-0.3%	0.3%	51%	51%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	818	132	816	133	-0.2%	0.6%	23%	23%
	WB	1329	135	1324	135	-0.4%	0.5%	37%	37%
M6 between M42 slip roads and Junction 5	EB	6405	1990	6489	1988	1.3%	-0.1%	114%	116%
	WB	6748	2010	6766	2010	0.3%	0.0%	120%	121%
M6 between Junction 5 and Junction 6	EB	4967	940	5037	940	1.4%	0.0%	81%	82%
	WB	5622	1210	5641	1210	0.3%	0.0%	91%	92%
M6 Junction 5 On slip	EB	1122	227	1136	225	1.2%	-1.1%	34%	34%
M6 Junction 5 Off slip	WB	1070	243	1068	243	-0.1%	0.1%	32%	32%

Table 8-313: Strategic road network PM peak hour (17:00-18:00) traffic flows 2026 future baseline and with HS2 traffic (vehicles)

Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with HS2
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1607	76	1624	76	1.0%	-0.1%	45%	45%
	SB	1256	71	1258	71	0.1%	0.0%	35%	35%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	2299	58	2317	58	0.8%	0.0%	44%	45%
	SB	1592	144	1593	144	0.1%	0.0%	31%	31%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	2490	233	2501	233	0.4%	-0.2%	48%	48%
	SB	2069	188	2074	189	0.2%	0.1%	40%	40%

Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with HS2
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	939	54	938	54	-0.1%	-0.3%	28%	28%
	WB	969	77	965	76	-0.4%	-0.7%	27%	27%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	1832	152	1830	152	-0.1%	-0.1%	51%	51%
	WB	1593	141	1592	141	-0.1%	0.0%	44%	44%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	1025	96	1023	96	-0.2%	-0.1%	28%	28%
	WB	1263	110	1263	110	-0.1%	0.0%	35%	35%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	1723	172	1717	171	-0.4%	-0.1%	54%	54%
	WB	1207	124	1206	124	-0.1%	0.0%	38%	38%
A38 Tyburn Road between Wheelwright Rd and Abbotts Rd)	EB	1579	132	1566	130	-0.8%	-1.4%	49%	49%
	WB	1813	215	1797	215	-0.9%	0.0%	57%	56%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	1399	64	1374	63	-1.8%	-1.0%	44%	43%
	SB	718	42	707	41	-1.5%	-4.0%	22%	22%
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1671	147	1619	147	-3.1%	-0.6%	52%	51%
	SB	1243	92	1216	89	-2.1%	-3.8%	39%	38%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	1879	46	1815	44	-3.4%	-4.0%	59%	57%
	SB	2011	61	1968	55	-2.2%	-9.4%	63%	61%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	1176	42	1152	42	-2.1%	0.0%	25%	24%
	SB	1176	35	1159	35	-1.5%	0.0%	25%	24%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	1176	42	1152	42	-2.1%	0.0%	25%	24%
	SB	1176	35	1159	35	-1.5%	0.0%	25%	24%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	1183	45	1184	45	0.1%	0.6%	33%	33%
	WB	1247	120	1239	120	-0.6%	-0.4%	35%	34%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	916	50	917	50	0.1%	0.5%	25%	25%
	WB	1120	88	1112	88	-0.7%	-0.5%	31%	31%
M6 between M42 slip roads and Junction 5	EB	7717	1589	7719	1589	0.0%	0.0%	140%	140%
	WB	5852	1325	5930	1324	1.3%	-0.1%	106%	108%
M6 between Junction 5 and Junction 6	EB	6281	683	6289	683	0.1%	0.0%	102%	102%
	WB	4504	678	4568	678	1.4%	0.0%	74%	74%
M6 Junction 5 On slip	EB	1120	117	1115	117	-0.4%	0.4%	33%	33%
M6 Junction 5 Off slip	WB	1257	159	1271	157	1.1%	-0.9%	38%	38%

- 8.5.113 It is forecast that traffic flows on the strategic road network in the Castle Bromwich and Bromford area will reduce overall with the delivery of the Washwood Heath Depot, in comparison to the 2026 future baseline traffic flows. This is due to the displacement of the businesses currently on the Washwood Heath Depot site to accommodate the Proposed Scheme.
- 8.5.114 There will however be increases in traffic on some links, due to traffic travelling to and from the proposed Curzon Street and Birmingham Interchange stations. A maximum percentage change of 1.4% eastbound in the AM peak (08:00-09:00) and westbound in the PM peak (17:00-18:00) is identified on the M6 between Junction 5 and Junction 6, predominantly as a result of traffic passing through the area. However, no link is expected to experience a change in volume to capacity of greater than 2% within the Castle Bromwich and Bromford area. Overall, therefore the forecast changes to the link flows are not substantial and further detailed assessment has not been required.

#### *Local road network - links*

- 8.5.115 This section summarises the increases in traffic on local roads in the area in 2026 as a result of the Proposed Scheme, together with the assessment of the impacts. Table 8-314 and Table 8-315 show a summary of the 2026 future baseline flows for the local roads on which there is an impact forecast together with the 2026 HS2 flows on completion of the Proposed Scheme.

Table 8-314: Local road network 2026 future baseline and with HS2 traffic (vehicles) – AM peak (08:00-09:00)

Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with HS2
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	433	35	432	35	-0.2%	-0.2%	13	13
	WB	1256	72	1254	72	-0.2%	-0.1%	35	35
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	425	19	424	19	-0.2%	0.0%	37	37
	WB	732	22	729	22	-0.3%	0.0%	64	63
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1419	87	1412	83	-0.5%	-4.4%	39	39
	WB	1211	77	1201	76	-0.8%	-1.0%	34	33
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	233	11	233	11	0.0%	0.0%	18	18
	WB	165	11	166	11	0.2%	0.0%	13	13
Bromford Road between Farnhurst Road and Bromford Drive	EB	566	27	545	20	-3.9%	-24.2%	44	42
	WB	926	24	895	22	-3.3%	-5.4%	71	69
B4114 Coleshill Road between Newport Road and Bromford Road	EB	964	76	952	69	-1.3%	-8.5%	63	62
	WB	1456	117	1438	116	-1.3%	-1.1%	95	94



Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with HS2
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	397	51	398	51	0.2%	0.0%	31	31
	SB	755	63	754	63	-0.1%	0.0%	58	58

Table 8-315: Local road network 2026 future baseline and with HS2 traffic (vehicles) – PM peak (17:00-18:00)

Location	Direction	2026 baseline		2026 with HS2 traffic		With HS2 % change from 2026 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026with HS2
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	774	21	769	20	-0.6%	-0.5%	23	23
	WB	525	37	525	37	-0.1%	0.0%	15	15
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	598	14	597	14	-0.3%	0.0%	52	52
	WB	425	22	425	22	-0.2%	0.0%	37	37
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1458	33	1448	33	-0.7%	0.0%	41	40
	WB	1338	62	1337	60	-0.1%	-2.5%	37	37
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	207	9	207	9	0.2%	0.0%	16	16
	WB	139	5	139	5	0.0%	0.0%	11	11
Bromford Road between Farnhurst Road and Bromford Drive	EB	690	14	654	14	-5.2%	0.0%	53	50
	WB	591	25	584	22	-1.1%	-10.4%	45	45
B4114 Coleshill Road between Newport Road and Bromford Road	EB	1501	78	1480	78	-1.4%	0.0%	98	97
	WB	1131	76	1128	73	-0.3%	-3.4%	74	74
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	537	38	533	38	-0.7%	0.0%	41	41
	SB	442	33	442	33	-0.1%	0.0%	34	34

8.5.116 It is forecast that the traffic levels in the Castle Bromwich and Bromford area in 2026, with the Proposed Scheme, will generally decrease on the local road network. This is due to the removal of traffic associated with the businesses already on the Washwood Heath Depot site, which will be displaced to accommodate the depot. Furthermore, no changes to the local road network are proposed as part of the Proposed Scheme.

## Junction performance 2026

### Strategic road network - junction assessment

- 8.5.117 Increases in flows of greater than 2% have not been identified at any of the junctions on the strategic road network within the Castle Bromwich and Bromford area in 2026, either in the AM peak (08:00-09:00) or PM peak (17:00-18:00). Furthermore, no junction approach links are expected to experience an increase in the volume to capacity ratio of greater than 2%. As such, no junctions are expected to experience a negative impact in regards to capacity and operation from the proposed scheme. Therefore detailed junction modelling has not been undertaken.

### Local road network - junction assessment (2026 operation)

- 8.5.118 No increases in the volume to capacity ratio are identified on local links within the Castle Bromwich and Bromford area, whilst no changes greater than 2% are forecast at any of the junctions on the local road network within the Castle Bromwich and Bromford area in 2026. As such, no junctions are expected to experience an impact in regards to capacity and operation and therefore detailed junction modelling has not been undertaken.

## Strategic and local road network traffic flows 2041 Phase Two

### Strategic road network - links

- 8.5.119 This section summarises the increases in traffic on the strategic road network in 2041 as a result of the Proposed Scheme, together with the assessment of the impacts. No changes to the strategic road network are proposed as part of the Proposed Scheme.
- 8.5.120 Table 8-316 and Table 8-317 provide a summary of the 2041 future baseline flows for the strategic network together with the 2041 HS2 flows on completion of the Proposed Scheme.

Table 8-316: Strategic road network 2041 future baseline and with HS2 traffic (vehicles) AM peak (08:00-09:00)

Location	Direction	2041 baseline		2041 with HS2 traffic		With HS2 % change from 2041 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 baseline	2041 with HS2
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1293	111	1302	111	0.7%	0.0%	36%	36%
	SB	1750	141	1786	141	2.1%	0.0%	49%	50%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	2036	123	2045	123	0.5%	0.0%	39%	39%
	SB	2279	241	2316	241	1.6%	0.0%	44%	45%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	3197	391	3202	392	0.2%	0.1%	61%	62%
	SB	2678	357	2713	358	1.3%	0.2%	51%	52%
A452 between M6 Junction 5	EB	1033	106	1031	106	-0.2%	-0.7%	31%	31%

Location	Direction	2041 baseline		2041 with HS2 traffic		With HS2 % change from 2041 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 baseline	2041 with HS2
roundabout and Parkfield Dr	WB	1309	114	1302	113	-0.6%	-0.3%	36%	36%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	1473	218	1472	218	-0.1%	0.0%	41%	41%
	WB	1901	235	1899	235	-0.1%	-0.1%	53%	53%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	1243	174	1242	174	-0.1%	-0.1%	35%	34%
	WB	1773	238	1771	237	-0.1%	-0.1%	49%	49%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	1163	190	1161	190	-0.2%	-0.1%	36%	36%
	WB	2182	282	2177	282	-0.2%	-0.1%	68%	68%
A38 Tyburn Road between Wheelwright Rd and Abbotts Rd)	EB	1819	152	1789	149	-1.6%	-1.8%	57%	56%
	WB	2428	396	2417	396	-0.4%	0.2%	76%	76%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	928	71	914	71	-1.5%	-0.5%	29%	29%
	SB	1241	77	1197	75	-3.6%	-2.1%	39%	37%
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1450	117	1420	117	-2.0%	0.1%	45%	44%
	SB	1723	179	1637	174	-5.0%	-2.6%	54%	51%
A4040 Bromford Lane between A47 Fort Parkway and Wolesey Dr	NB	2357	92	2310	92	-2.0%	0.6%	74%	72%
	SB	1789	74	1686	69	-5.8%	-7.2%	56%	53%
A4040 Bromford Lane between Wolesey Dive and Drews Ln	NB	1339	93	1333	93	-0.4%	0.0%	28%	28%
	SB	1281	77	1267	74	-1.1%	-3.8%	27%	26%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	1339	93	1333	93	-0.4%	0.0%	28%	28%
	SB	1281	77	1267	74	-1.1%	-3.8%	27%	26%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	930	124	928	125	-0.3%	0.6%	26%	26%
	WB	2105	233	2097	234	-0.4%	0.2%	58%	58%
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	940	152	938	153	-0.3%	0.5%	26%	26%
	WB	1528	155	1520	156	-0.5%	0.4%	42%	42%
M6 between M42 slip roads and Junction 5	EB	7363	2288	7527	2285	2.2%	-0.1%	131%	134%
	WB	7757	2310	7793	2310	0.5%	0.0%	139%	139%
M6 between Junction 5 and Junction 6	EB	5710	1081	5842	1081	2.3%	0.0%	93%	95%
	WB	6463	1391	6497	1391	0.5%	0.0%	105%	105%
M6 Junction 5 On slip	EB	1290	261	1322	258	2.5%	-1.1%	39%	39%
M6 Junction 5 Off slip	WB	1230	279	1231	279	0.1%	0.0%	37%	37%

Table 8-317: Strategic road network 2041 future baseline and with HS2 traffic (vehicles) PM peak (17:00-18:00)

Location	Direction	2041 baseline		2041 with HS2 traffic		With HS2 % change from 2041 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 baseline	2041 with HS2
A452 Chester Road between Marshbrook Rd and B4148 Tyburn Rd	NB	1841	87	1874	87	1.8%	-0.1%	51%	52%
	SB	1439	81	1442	81	0.2%	0.0%	40%	40%
A452 Chester Road between A38 Kingsbury Rd and A47 Fort Parkway	NB	2633	66	2668	66	1.3%	0.0%	51%	51%
	SB	1823	164	1827	164	0.2%	0.0%	35%	35%
A452 Chester Road between A47 Fort Parkway and M6 Junction 5 roundabout	NB	2852	267	2879	266	0.9%	-0.2%	55%	55%
	SB	2370	216	2376	216	0.2%	0.1%	46%	46%
A452 between M6 Junction 5 roundabout and Parkfield Dr	EB	1076	62	1074	61	-0.1%	-0.3%	32%	32%
	WB	1110	88	1105	87	-0.4%	-0.7%	31%	31%
A38 Kingsbury Road between Yatesbury Ave and A452 Chester Rd	EB	2099	175	2096	175	-0.1%	-0.1%	58%	58%
	WB	1824	161	1823	161	-0.1%	0.0%	51%	51%
A38 Kingsbury Road between A452 Chester Rd and B4148 Tyburn Rd	EB	1174	110	1171	110	-0.2%	-0.1%	33%	33%
	WB	1447	126	1446	126	-0.1%	0.0%	40%	40%
A38 Tyburn Road between B4148 Tyburn Rd and A4040 Bromford Lane	EB	1974	197	1966	196	-0.4%	-0.1%	62%	61%
	WB	1383	142	1381	142	-0.1%	0.0%	43%	43%
A38 Tyburn Road between Wheelwright Rd and Abbotts Rd)	EB	1809	151	1793	149	-0.8%	-1.5%	57%	56%
	WB	2077	247	2057	247	-0.9%	0.0%	65%	64%
A4040 Bromford Lane between Erdington Hall Rd and A38 Tyburn Rd	NB	1603	73	1574	73	-1.8%	-1.0%	50%	49%
	SB	822	48	810	47	-1.5%	-4.0%	26%	25%
A4040 Bromford Lane between Wheelwright Rd and A47 Fort Parkway	NB	1914	169	1852	168	-3.2%	-0.6%	60%	58%
	SB	1424	106	1393	102	-2.1%	-3.9%	44%	44%
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Dr	NB	2152	52	2075	50	-3.6%	-4.6%	67%	65%
	SB	2303	70	2254	63	-2.1%	-9.8%	72%	70%
A4040 Bromford Lane between Wolseley Dive and Drews Ln	NB	1347	48	1320	48	-2.1%	0.0%	28%	27%
	SB	1347	40	1328	40	-1.5%	0.0%	28%	28%
A4040 Bromford Lane between St Margarets Ave and B4114 Washwood Heath Rd	NB	1347	48	1320	48	-2.1%	0.0%	28%	27%
	SB	1347	40	1328	40	-1.5%	0.0%	28%	28%
A47 Fort Parkway between A452 Chester Rd and East Dr	EB	1355	51	1354	52	0.0%	0.3%	38%	38%
	WB	1428	138	1419	137	-0.6%	-0.5%	40%	39%

Location	Direction	2041 baseline		2041 with HS2 traffic		With HS2 % change from 2041 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 baseline	2041 with HS2
A47 Fort Parkway between Wingfoot Way and A4040 Bromford Ln	EB	1049	57	1049	57	0.0%	0.3%	29%	29%
	WB	1283	101	1274	101	-0.7%	-0.6%	36%	35%
M6 between M42 slip roads and Junction 5	EB	8839	1820	8849	1820	0.1%	0.0%	161%	161%
	WB	6703	1518	6856	1516	2.3%	-0.1%	122%	125%
M6 between Junction 5 and Junction 6	EB	7195	782	7210	782	0.2%	0.0%	117%	117%
	WB	5159	776	5280	776	2.3%	0.0%	85%	86%
M6 Junction 5 On slip	EB	1283	134	1278	134	-0.3%	0.3%	38%	38%
M6 Junction 5 Off slip	WB	1440	182	1471	180	2.2%	-1.0%	43%	44%

8.5.121 In 2041, commensurate with 2026, traffic flows generally across the strategic road network with the Proposed Scheme are expected to be lower than in the future baseline. This is due to the displacement of businesses and associated traffic at the Washwood Heath Depot site to deliver the Proposed Scheme.

8.5.122 Small increases on some traffic links are expected, predominantly as a result of traffic travelling through the Castle Bromwich and Bromford area to access the Curzon Street and Birmingham Interchange Stations. A maximum percentage change of 2.5% on the M6 Junction 5 on-slip is expected in the AM peak (08:00-09:00) from the Proposed Scheme, whilst an increase of 2.3% is expected on the M6 westbound between the M42 slip roads and Junction 5 and between Junction 5 and Junction 6 and in the PM peak (17:00-18:00). This is an increase from 2026, and is a result of the forecast enhanced demand at Curzon Street and Birmingham Interchange stations in 2041. No link however is expected to experience a change in volume to capacity of greater than 3% within the Castle Bromwich and Bromford area. Overall, therefore the forecast changes to the link flows are not substantial and further detailed assessment has not been required.

#### *Local road network - links*

8.5.123 This section summarises the increases in traffic on local roads in the area in 2041 as a result of the Proposed Scheme, together with the assessment of the impacts.

8.5.124 Table 8-318 and Table 8-319 summarise the 2041 future baseline flows for the local roads on which an impact is forecast, together with the 2041 HS2 flows on completion of the Proposed Scheme.

Table 8-318: Local road network AM peak hour (08:00-09:00) traffic flows 2041 future baseline and with HS2 traffic (vehicles)

Location	Direction	2041 baseline		2041 with HS2 traffic		With HS2 % change from 2041 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 baseline	2041 with HS2
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	497	40	497	40	-0.2%	-0.2%	15%	15%
	WB	1444	83	1441	83	-0.2%	-0.1%	40%	40%
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	489	22	488	22	-0.2%	0.0%	42%	42%
	WB	841	25	838	25	-0.4%	0.0%	73%	73%
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1631	100	1625	96	-0.4%	-4.4%	45%	45%
	WB	1392	89	1381	88	-0.8%	-1.0%	39%	38%
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	268	13	268	13	0.0%	0.0%	21%	21%
	WB	190	13	191	13	0.2%	0.0%	15%	15%
Bromford Road between Farnhurst Road and Bromford Drive	EB	651	31	626	23	-3.9%	-24.2%	50%	48%
	WB	1064	27	1029	26	-3.3%	-5.4%	82%	79%
B4114 Coleshill Road between Newport Road and Bromford Road	EB	1109	87	1096	80	-1.1%	-8.5%	72%	72%
	WB	1674	134	1653	133	-1.3%	-1.1%	109%	108%
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	456	59	459	59	0.6%	0.0%	35%	35%
	SB	868	72	868	72	0.0%	0.0%	67%	67%

Table 8-319: Local road network PM peak hour (17:00-18:00) traffic flows 2041 future baseline and with Proposed Scheme traffic (vehicles)

Location	Direction	2041 baseline		2041 with HS2 traffic		With HS2 % change from 2041 baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 baseline	2041 with HS2
B4148 Tyburn Road between A452 Chester Rd and A38 Kingsbury Rd	EB	887	23	881	23	-1%	-1%	26%	26%
	WB	602	43	601	43	0%	0%	17%	17%
Tangmere Drive between Farnborough Rd and A452 Chester Rd	EB	685	16	683	16	0%	0%	60%	59%
	WB	487	25	486	25	0%	0%	42%	42%
Newport Road between M6 Junction 5 and B4114 Coleshill Rd	EB	1670	38	1659	38	-1%	0%	46%	46%
	WB	1532	70	1532	69	0%	-3%	43%	43%
Parkfield Drive between Beechcroft Rd and B4118 Water Orton Rd	EB	237	10	237	10	0%	0%	18%	18%
	WB	159	6	159	6	0%	0%	12%	12%

Bromford Road between Farnhurst Road and Bromford Drive	EB	791	16	750	16	-5%	0%	61%	58%
	WB	677	28	669	25	-1%	-10%	52%	51%
B4114 Coleshill Road between Newport Road and Bromford Road	EB	1719	90	1695	90	-1%	0%	112%	111%
	WB	1296	87	1294	84	0%	-3%	85%	85%
B4114 Coleshill Road between Bromford Road and A4040 Bromford Lane	NB	615	44	611	44	-1%	0%	47%	47%
	SB	506	38	507	38	0%	0%	39%	39%

- 8.5.125 Commensurate with 2026, flows on local links within the Castle Bromwich and Bromford area are generally expected to reduce in 2041 with the Proposed Scheme. This is due to the removal of traffic associated with the businesses already on the Washwood Heath Depot site, which will be displaced to accommodate the depot. Furthermore, no changes to the local road network are proposed as part of the Proposed Scheme.

### *Junction performance 2041*

#### *Local road network -junction assessment*

- 8.5.126 Increases in flows of greater than 2% have not been identified at any of the junctions on the strategic road network within the Castle Bromwich and Bromford area in 2041, either in the AM peak (08:00-09:00) or PM peak (17:00-18:00). Furthermore, no junction approach links are expected to experience an increase in the volume to capacity ratio of greater than 2%. As such, no junctions are expected to experience a negative impact in regards to capacity and operation. Therefore detailed junction modelling has not been undertaken.

#### *Local road network - junction assessment*

- 8.5.127 No increases in the volume to capacity ratio are identified on local links within the Castle Bromwich and Bromford area, whilst no changes greater than 2% are forecast at any of the junctions in 2041. As such, no junctions are expected to experience an impact in regards to capacity and operation and therefore detailed junction modelling has not been undertaken.

### *Accidents and safety*

- 8.5.128 The baseline safety analysis identified five locations were identified which had experienced 9 or more Personal Injury Accidents over a three year period. These locations included the A452 Chester Road/A38 roundabout, the A38 Tyburn Road/A4040 Bromford Lane junction, the A47/A4040 Bromford Lane (Bromford Island) roundabout, the A4040 Bromford Lane/B4114 Washwood Heath Road junction and the M6 Junction 5 roundabout.

- 8.5.129 Flows at these locations, during operation of the Proposed Scheme, are predicted to reduce compared to the future baseline scenario. In addition, the future baseline highway improvements are expected to improve safety, particularly on the A452 Chester Road as part of the A452 Chester Road Access Improvements scheme. Therefore, the Proposed Scheme is not forecast to exacerbate existing accident concerns or create new problems.

### *Parking*

- 8.5.130 The Proposed Scheme will require the acquisition of land at the Castle Bromwich Business Park. This will result in the permanent loss of approximately 200 private car parking spaces at businesses in the vicinity of the eastern tunnel entrance portal. The businesses associated with the car parking spaces will be displaced, to facilitate the Proposed Scheme, and therefore the need for these spaces will no longer exist, and, therefore, there will be no impact as a result of the Proposed Scheme on parking in the Castle Bromwich and Bromford area.

### *Rail network*

- 8.5.131 The key stations in the area, in terms of the strategic rail network and the Proposed Scheme, will be the proposed stations at Curzon Street and Birmingham Interchange. Both stations are located in adjacent or nearby areas, and are considered in the Washwood Heath to Curzon Street and Birmingham Interchange and Chelmsley Wood sections of this report respectively.
- 8.5.132 As a result of the Proposed Scheme, rail passengers in the Castle Bromwich and Bromford area will benefit from faster journeys between London and Birmingham, when compared with existing services. Rail capacity is also expected to be released, with the Rugby to Birmingham railway, the Chiltern railway and Lichfield lines forecast to observe a reduction in passenger demand due to switching of trips to the Proposed Scheme, as set out in the Washwood Heath to Curzon Street section of this report.
- 8.5.133 The impacts of the Proposed Scheme on the local rail network are expected to be two-fold. Firstly, the local rail network will provide a means of access to the Proposed Scheme with stations between Erdington and Sutton Coldfield, Stechford and Lea Hall providing connection to Birmingham New Street. Stechford and Lea Hall stations also provide connection to Birmingham International station. Table 8-320 shows the main origins and destinations for local public transport trips in terms of access to the Curzon Street station, in 2026 and 2041.



Table 8-320: Primary origin and destination of local public transport trips boarding and alighting at Curzon Street station

Origin/destination	2026		2041	
	Boarders	Alighters	Boarders	Alighters
Birmingham City Centre	42%	42%	42%	42%
Selly Oak, Northfield	12%	12%	12%	12%
Erdington, Sutton Coldfield, Lichfield	9%	10%	9%	10%
Chad Valley	6%	6%	6%	6%
Bromsgrove, Evesham, Cheltenham	6%	6%	6%	6%

- 8.5.134 The Proposed Scheme will also release capacity on the Rugby to Birmingham line in terms of the local rail network, providing the potential for an increase in local service provision. Therefore, there will be potential benefits to commuters and rail users, at stations such as stations between Erdington and Sutton Coldfield, Stechford and Lea Hall, arising from the released capacity in the local rail network, although the extent of these benefits has not been quantified in terms of either the 2026 or 2041 operation assessments.

#### *Local bus and coach services*

- 8.5.135 Local bus services will provide a means of access to the Proposed Scheme. Table 8-320 above shows the main origins and destinations for local public transport trips, in terms of access to the Curzon Street station, in 2026 and 2041.
- 8.5.136 Table 8-320 shows that, outside of Birmingham city centre, the main public transport draw for trips to the Curzon Street station will include Erdington, Lichfield and Sutton Coldfield, with some services associated with these destinations likely to pass through Castle Bromwich and Bromford area. As set out in the Washwood Heath to Curzon Street section of this report, sufficient bus capacity will be available in both 2026 and 2041 to accommodate any additional public transport trips due to the Proposed Scheme.

8.5.137 An assessment of bus capacity and demand by the main bus corridors in Birmingham is contained in the Washwood Heath to Curzon Street section of this report. The assessment data provided by CENTRO regarding existing bus utilisation and capacity combined with forecast bus demand levels from the Proposed Scheme, which were extracted from PLANET. In the case of the A47, which serves as a main corridor for public transport trips to and from the city centre and passes into the Castle Bromwich and Bromford area, some inbound AM peak (08:00-09:00) services may have standing room only available. Therefore additional bus services may be required on this route, but as this is an existing capacity issue, additional services may be required with or without the Proposed Scheme. Bus services are a commercial operation and it is expected that if demand for bus services increases as a result of the Proposed Scheme that the bus operators would increase the number of bus serves to cater for the increased demand.

8.5.138 There are no committed proposals for long distance coach services in the Castle Bromwich and Bromford area in terms of either the 2026 or 2041 operation assessments. Therefore, no impacts from the Proposed Scheme associated with coach services are expected in the Castle Bromwich and Bromford area.

#### *Public transport interchanges*

8.5.139 There are no public transport interchanges located within the Castle Bromwich and Bromford area. Therefore, there will be no impacts of the Proposed Scheme on public transport interchanges (in either the 2026 or 2041 assessments).

#### *Pedestrian, cyclist and equestrian*

8.5.140 The impact on footpaths (including roadside footways), cycleway and bridleway links of the Proposed Scheme in the Castle Bromwich and Bromford area has been minimised, as far as possible, through the design process. As such, no footpath links are expected to be affected by the Proposed Scheme (in terms of either the 2026 or 2041 operation assessments), with only a limited number of additional walking and cycling trips expected to be generated from the Washwood Heath Depot site, as indicated by Table 8-309.

8.5.141 There are no equestrian routes within the Castle Bromwich and Bromford area. Therefore, there will be no impact of the Proposed Scheme on equestrian routes (in terms of either the 2026 or 2041 operation assessments).

#### *Taxis*

8.5.142 No changes are expected to the taxi services within the Castle Bromwich and Bromford area, as a result of the Proposed Scheme. Therefore, there will be no impact on taxis as a result of the Proposed Scheme in either the 2026 or 2041.

### *Waterways and canals*

- 8.5.143 The Proposed Scheme will not result in changes to the existing canal network in the Castle Bromwich and Bromford area. Therefore, there will be no impact of the Proposed Scheme on waterways and canals as a result of the Proposed Scheme.

### *Air transport*

- 8.5.144 Birmingham Airport is located to the south of the Castle Bromwich and Bromford area and is included in the Birmingham Interchange and Chelmsley Wood section within this report.

### *Castle Bromwich and Bromford (CFA25) Proposed Scheme mitigation of impacts*

#### *Strategic and local road network*

- 8.5.145 The Proposed Scheme will not require any mitigation in terms of the strategic road network in the Castle Bromwich and Bromford area.
- 8.5.146 The Proposed Scheme will not require any mitigation in terms of the local road network in the Castle Bromwich and Bromford area.

### *Accidents and Safety*

- 8.5.147 The Proposed Scheme will not require any mitigation in terms of road safety in the Castle Bromwich and Bromford area.

### *Rail network*

- 8.5.148 The Proposed Scheme will not require any mitigation in terms of the strategic rail network in the Castle Bromwich and Bromford area.
- 8.5.149 The Proposed Scheme will not require any mitigation in terms of the local rail network in the Castle Bromwich and Bromford area.

### *Local bus coach services*

- 8.5.150 The Proposed Scheme will not require any mitigation in terms of the local bus and coach services in the Castle Bromwich and Bromford area.

### *Public transport interchanges*

- 8.5.151 The Proposed Scheme will not require any mitigation in terms of public transport interchanges in the Castle Bromwich and Bromford area.

### *Pedestrian, cyclist and equestrian*

- 8.5.152 The Proposed Scheme will not require any mitigation in terms of pedestrians and cyclists in the Castle Bromwich and Bromford area.

- 8.5.153 The Proposed Scheme will not require any mitigation in terms of equestrian routes in the Castle Bromwich and Bromford area.

*Taxis*

- 8.5.154 The Proposed Scheme will not require any mitigation in terms of taxis in the Castle Bromwich and Bromford area.

*Waterways and canals*

- 8.5.155 The Proposed Scheme will not require any mitigation in terms of waterways and canals in the Castle Bromwich and Bromford area.

*Parking*

- 8.5.156 The Proposed Scheme will not require any mitigation in terms of parking in the Castle Bromwich and Bromford area.

*Air transport*

- 8.5.157 The Proposed Scheme will not require any mitigation in terms of air transport in the Castle Bromwich and Bromford area.

## 8.6 Washwood Heath to Curzon Street station (CFA26)

### Washwood Heath to Curzon Street station Proposed Scheme description

- 8.6.1 The Washwood Heath to Curzon Street area (CFA26) commences at chainage 170+350 and ends at chainage 170+750 of the Proposed Scheme.
- 8.6.2 Figure 2 (Volume 2, CFA Report 26) details the location of the CFA. Washwood Heath to Curzon Street lies to the far west of the Proposed Scheme, with Curzon Street station forming a terminus for the Birmingham Spur. Castle Bromwich and Bromford (CFA25) lies to the east.
- 8.6.3 The route of the Proposed Scheme through this area is approximately 5.7 km long. The route will enter the Washwood Heath to Curzon Street area by tunnel, from the Castle Bromwich and Bromford area (CFA25) to the east, heading in a westerly direction. The route will be in tunnel for 0.7km in CFA26 (total length of proposed tunnel is approximately 2.9km, with the remainder 2.2km being located in CFA25). The route will emerge via a tunnel portal, within land where the existing Washwood Heath rail depot is located. A rolling stock maintenance depot (Washwood Heath Depot), which will serve as an operational and maintenance hub for the Proposed Scheme, is proposed for this site.
- 8.6.4 After passing the site of the proposed Washwood Heath Depot, the route continues west, under the raised Washwood Heath rail overbridge, which carries the Stechford and Aston line, and a new Aston Church Road overbridge before it passes through the western edge of Saltley Business Park, over the Grand Union Canal and under the replacement B4114 Saltley Viaduct, which will be raised to accommodate the route.
- 8.6.5 After the B4114 Saltley Viaduct, the route of the Proposed Scheme will rise on embankment towards Duddeston Mill Road. Before reaching Duddeston Mill Road, the route will rise on the Duddeston junction viaduct and cross over the Birmingham and Derby line and proceed towards Curzon Street crossing over the Freightliner Terminal Depot, the River Rea, Erskine Street, Viaduct Street, the Birmingham and Bushbury line (also known as the Cross-City line), St James' Place and the A4540 Lawley Middleway before arriving at the new Curzon Street station, the western terminus for the Proposed Scheme.

### *Bromford Tunnel and Bromford Tunnel west portal*

- 8.6.6 The route will be in the proposed Bromford tunnel as it enters, from the adjacent Castle Bromwich and Bromford area (CFA25), into the Washwood Heath to Curzon Street area, at approximately 400m east of the A4040 Bromford Lane. As the Bromford tunnel approaches Washwood Heath, it will pass in succession under the River Tame, the A4040 Bromford Lane and a further upstream section of the River Tame. The route will leave the tunnel via the western tunnel portal, where the train tracks gradually rise from below ground level to ground level as the route heads towards the replacement Washwood Heath rail overbridge, which will carry the Stechford and Aston line over the Birmingham and Derby line.

### *Washwood Heath Depot*

- 8.6.7 The proposed Washwood Heath Depot (Volume 2: Map CT-06-139b) will occupy the area between the River Tame in the east to the Stechford and Aston line in the west, although the access route tracks for the Washwood Heath depot will extend further west beyond the B4114 Saltley Viaduct. The Washwood Heath Depot will be the location where train servicing (interior and exterior cleaning) will take place. Activities at this depot will also include light and heavy maintenance on the entire Proposed Scheme fleet. The depot site will be approximately 1.6km long and 400m wide. The depot will be the main depot facility to serve both Phase One and Phase Two of the Proposed Scheme and therefore will be designed with sufficient capacity to serve the full Phase Two network.

Figure 8-18: Visualisation of Washwood Heath depot



- 8.6.8 Maps CT-06-139b and CT-06-140 (Volume 2, Map Book 26) show the proposed depot in the context of the local road network.



8.6.9 The main access to the proposed depot will be from Wolseley Drive, and the A4040 Bromford Lane/Wolseley Drive junction, which is an existing signalised junction located to the south of the A47 Heartlands Parkway/A4040 Bromford Lane junction at Bromford Island. The proposed scheme will realign Wolseley Drive, but the existing junction will be unaffected.

8.6.10 Two further emergency accesses will be provided, from Aston Church Road and Common Lane. The Aston Church Road access will also provide access to the depot for employees and visitors arriving on foot and by bicycle.

8.6.11 It is estimated that approximately 385 staff will be based at the depot, and will comprise of maintenance and cleaning staff, support staff and train crew.

*Washwood Heath rail overbridge, Aston Church Road overbridge, Saltley canal underbridge and B4114 Saltley Viaduct*

8.6.12 After passing Washwood Heath Depot, the route will pass under the existing Stechford and Aston line and proceed in a southerly direction, remaining south of the existing railway. The existing Stechford and Aston line bridge will be replaced by a new overbridge (known as Washwood Heath rail overbridge) where it will cross the route (Volume 2: Map CT-06-140, G6). The proposed Washwood Heath rail overbridge will be raised higher than the existing bridge to allow room for the trains to pass underneath.

8.6.13 The route will then pass under a replacement Aston Church Road bridge and through the western edge of Saltley Business Park before passing over the Grand Union Canal on a new underbridge, (known as Saltley canal underbridge) (Volume 2: Map CT-06-140, C6). The route will then pass under a replacement of the existing B4114 Saltley Viaduct (Volume 2: Map CT-06-140, C6). Immediately south of the new B4114 Saltley Viaduct, the route will rise further, with an embankment (known as the Saltley retained fill) on the south side and a retaining wall on the north adjacent to the Birmingham and Derby line, through the western edge of the Network Park Industrial Estate towards Duddeston Mill Road.

8.6.14 The key transport features of this section will include:

- a new Aston Church Road overbridge over both the existing Birmingham and Derby line and the route (Volume 2: Map CT-06-140, G6);
- a new bridge (known as Saltley canal underbridge) (Volume 2: Map CT-06-140, 6C) to carry the route over the Grand Union Canal; and
- a new, longer viaduct to replace the existing B4114 Saltley Viaduct (Volume 2: Map CT-06-140, C6).

*Duddeston Mill Road bridge, Duddeston junction viaduct, Curzon Street No.1 viaduct, Curzon Street No.2 viaduct and Curzon Street No.3 viaduct*

- 8.6.15      Shortly before the route reaches Duddeston Mill Road, the route rises, turns westwards and crosses the existing Birmingham and Derby line and Duddeston Mill Road on a new viaduct (known as Duddeston junction viaduct), the height of which will be approximately 14m above ground level (height to railway level) at this point. As part of the Proposed Scheme, some of the Birmingham and Derby line tracks will be modified and a new Duddeston Mill Road underbridge will be constructed to allow Duddeston Mill Road to pass under the route.
  
- 8.6.16      After the route has crossed over the Birmingham and Derby line, it continues on viaduct (known as Curzon Street No.1 viaduct) and crosses over part of the Freightliner Terminal Depot before crossing the River Rea and area of industrial land off Erskine Street (Volume 2: Map CT-06-141, E7).
  
- 8.6.17      The route continues on viaduct (known as Curzon Street No.2 viaduct) and crosses the Cross-City line and Viaduct Street. Continuing west, the route passes over St James' Place and the A4540 Lawley Middleway, which at this point will be on viaduct (known as Curzon Street No.3 viaduct) and approximately 16m above ground level (to railway level).
  
- 8.6.18      From St James' Place, the twin-track railway starts to fan out to create the approach tracks into the proposed Curzon Street station on the Curzon Street No.3 viaduct crossing the Digbeth Branch Canal and lock, approximately 12.5m above ground level.
  
- 8.6.19      The key transport features of this section are new viaducts (including Duddeston junction viaduct and Curzon Street No.1 to No. 3 viaducts) carrying the route over the A4040 Lawley Middleway, other local roads including Erskine Street and Viaduct, and the Birmingham to Derby and Birmingham to Bushbury (Cross City) lines (Volume 2: Map CT-06-141).

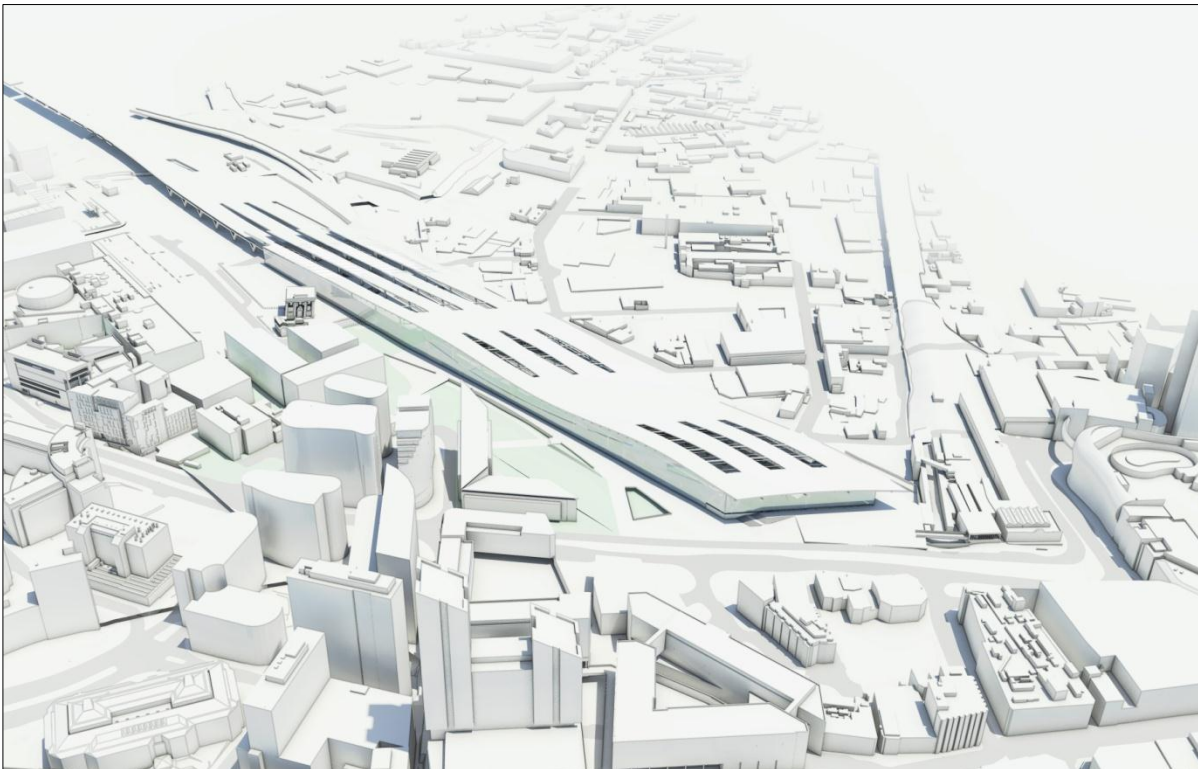
*Curzon Street station*

- 8.6.20      The proposed Curzon Street station will mark the western terminus of the Proposed Scheme, and provide both domestic and international high-speed rail travel to the public.
  
- 8.6.21      It is anticipated that initially there would be three trains per hour each way passing through the Washwood Heath to Curzon Street area. With Phase Two in place the frequency could rise to nine trains per hour each way during peak hours.
  
- 8.6.22      The first trains of the day will leave Curzon Street station no earlier than 05:00 Monday to Saturday (and 08:00 on Sundays) and the last would arrive no later than midnight. The station will be open for a short period before and after operating hours to allow for staff and passengers to enter or leave.



- 8.6.23 The station will occupy land south of Curzon Street from near Curzon Gateway in the east, to Moor Street Queensway at its western extent. The entrance of the station will be at the western end fronting onto Moor Street Queensway at ground level, with a connection to Moor Street station.
- 8.6.24 The station concourse at the western end will extend east for approximately 300m further than the platforms. There will be a lower eastern entrance beneath the platforms, close to the vehicular drop-off point and the existing Grade 1 listed former Curzon Street Station building. Lifts, stairs and escalators will carry passengers either down from the higher western concourse or up from the lower eastern entrance to the platforms. There will be service areas for international travellers within the complex.
- 8.6.25 The station will include six platforms (each approximately 415m in length) for domestic train services, arranged into three island platforms. In addition, there will be a seventh platform, capable of use by either domestic or international services.
- 8.6.26 The station will also include public facilities such as waiting areas, ticket machines, information, public toilets and retail, food and beverage outlets.

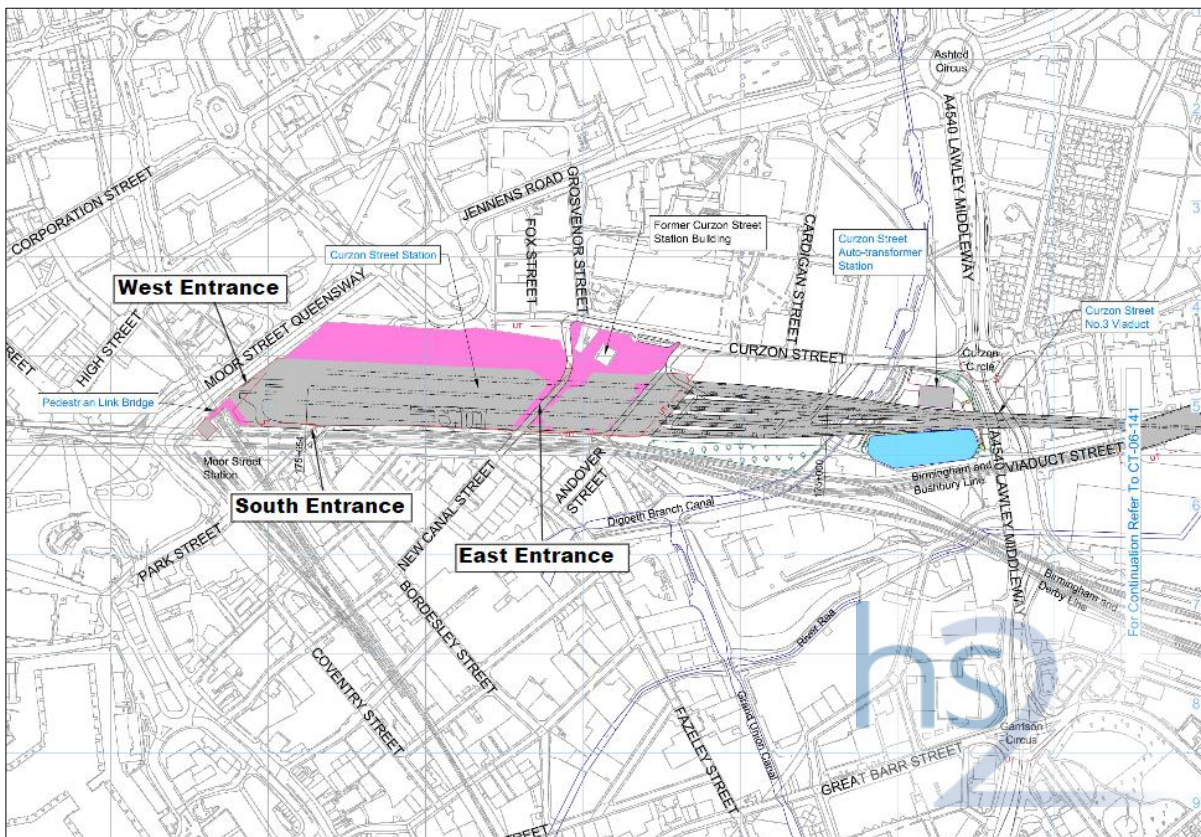
Figure 8-19: Visualisation of Curzon Street station



- 8.6.27 The station will have three main entrance points for domestic passengers, at B4100 Moor Street Queensway to the west, New Canal Street/Curzon Street to the north and B4114 Park Street to the south, and one entrance for international passengers, located on a new link between New Canal Street and Park Street. The three main entrance points are shown in the figure below.

- 8.6.28 The main entrance will be via Moor Street Queensway, which will form the main public transport and pedestrian connections to the station. Moor Street Queensway forms one of the main bus interchange areas in Birmingham City Centre, and therefore the proposed station is located in close proximity to existing bus stops. The station will include an internal pedestrian link to Moor Street station, to facilitate interchange with local rail services operating from Moor Street station. The station is approximately 500m (approximate walk time 6 minutes) from Birmingham New Street station, and therefore is well located for interchange with strategic and local rail services. The station is also well located for access to the city centre areas, including business, retail and leisure areas.
- 8.6.29 The access from New Canal Street will form the main entrance for passengers arriving at the station by car or taxi. The kiss and ride/short stay car park (comprising 60 spaces) and staff car parking areas will be accessed from Curzon Street, via a new road which will be located to the south of Curzon Street, between New Canal Street and Cardigan Street. A taxi drop-off area will be located on Curzon Street, to the west of the proposed car parking area, with capacity for 11 taxis. The New Canal Street/Curzon Street access will be the main access to the station from the Eastside area and Digbeth. The A4540 Lawley Middleway/Curzon Street junction at Curzon Circle will form the main vehicle access to the station from the strategic road network.

Figure 8-20: Proposed accesses to Curzon Street station (annotated extract from Map CT-06-142)



8.6.30 The southern access will provide access from the main station concourse to the taxi pickup area (with the capacity for 40 waiting taxis), which will be shared with Moor Street station. A taxi waiting area will be provided on the new link between New Canal Street and Park Street, between the southern extent of the proposed station and the existing Birmingham to Rugby line. The main service area of the station will also be accessed via this link.

8.6.31 The pick-up and drop-off areas for passengers for international services will be located on the new link between New Canal Street and Park Street.

8.6.32 The station will also include cycle parking at locations close to the main station entrances.

8.6.33 The proposed scheme will result in the permanent closure of a number of roads to facilitate the station proposals. These closures include the closure of B4114 Park Street from Masshouse Lane to Bordesley Street, Fazeley Street west of New Canal Street, Bartholomew Street and Banbury Street.

#### *Assessment methodology*

8.6.34 The assessment methodology is consistent with that outlined in the regional methodology section of the report for the West Midlands. Additionally, the following has been adopted when identifying the junctions that could be adversely affected by the Proposed Scheme.

8.6.35 To initially assess the impact of the Proposed Scheme, the differences in flow and v/c (volume to capacity ratio), by link have been quantified. To identify where impacts are likely to occur at junctions and as such where further assessment and more detailed junction modelling may be required, the following criteria have been used:

- The v/c for any approach is over 85%, and increases by more than 2% with the Proposed Scheme.

8.6.36 For the Birmingham City Centre Model (BCCM) area, it has been identified that very small changes in flow on a link which forms an approach to a junction could lead to the junction being flagged as having an adverse impact due to the Proposed Scheme, whereas in practice the impacts on the junction overall would be minimal. Sifting, therefore, has been undertaken as follows:

- The v/c for any approach is over 85%, and increases by more than 5% with the Proposed Scheme.

8.6.37 This local assessment criteria has been used to identify links and approaches to junctions on the strategic and local road network within the BCCM model area, which could be substantially impacted on in terms of traffic flow increases or increases in v/c. The junctions identified by this local assessment criteria have been considered further using appropriate junction assessment software to assess the impacts of the Proposed Scheme, where appropriate.

*Wolseley Drive - traffic removal*

- 8.6.38 The following outlines how the future baseline traffic flows at the A4040 Bromford Lane/Wolseley Drive junction have been derived and the assumptions made in removing the traffic associated with existing businesses located on the site of the proposed depot.
- 8.6.39 UK Mail, DVLA, and Charles Wilson Engineers Ltd are located on the site of the proposed depot or depot access road, and are currently accessed via Wolseley Drive, and the A4040 Bromford Lane/Wolseley Drive/Bromford Road junction to the east. UK Mail and the DVLA businesses will be displaced by the Proposed Scheme. Charles Wilson Engineers Ltd (CW Plant Hire Ltd) will have their access and storage yard removed during construction, for approximately four years. Therefore, existing traffic associated with these businesses has been removed from the network when considering the 2021, 2026 and 2041 Proposed Scheme scenarios.
- 8.6.40 To determine the existing level of traffic generated by businesses accessed via Wolseley Drive, traffic counts were completed at the A4040 Bromford Lane/Wolseley Drive/Bromford Road junction. The level of trips generated by businesses at Wolseley Drive, as determined by the traffic count, is shown in Table 8-296.

Table 8-321: Trip generation for existing businesses accessed via Wolseley Drive

Vehicle type	AM peak (08:00-09:00)			PM peak (17:00-18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Cars/LGVs	119	56	175	54	116	170
HGVs	6	8	14	8	3	11
Total	125	64	189	62	119	181

- 8.6.41 The results of the count show that the businesses currently generate 189 two-way trips during the AM (08:00-09:00) peak and 181 two-way trips during the PM (17:00-18:00) peak. In order to distribute these trips across the Washwood Heath network, existing turning proportions based on further traffic counts in the CFA25 and 26 areas were used to determine the likely origins/destinations of this traffic. Only a selection of turning movements were used to ensure that trips were distributed along the most likely routes i.e. to avoid u-turning and routes with longer journey times.



- 8.6.42 To derive the 2021, 2026 and 2041 future year scenarios for assessment, traffic associated with businesses accessed via Wolseley Drive was removed from the network in 2012. The remaining network flows were then factored to the appropriate future year, and in the case of the future baseline flows, the traffic associated with Wolseley Drive was then re-applied to the network. This approach assumed no growth in traffic from Wolseley Drive between the 2012 baseline and future year baseline scenarios. In the Proposed Scheme future year scenarios, the Proposed Scheme traffic (construction or operation) was added to the network to replace traffic associated with the existing businesses on Wolseley Drive.

### **Washwood Heath to Curzon Street (CFA26) Proposed Scheme future baseline**

#### *Key future baseline issues*

- 8.6.43 The key transport changes in relation to the Washwood Heath to Curzon Street area are expected to relate to general background growth in traffic flows, irrespective of the Proposed Scheme. In the city centre area the estimated growth in traffic between 2012 and 2041 is up to 39% due to planned and committed developments and background growth, and in the Washwood Heath area the estimated growth in traffic is up to 47%, due to general background traffic growth.
- 8.6.44 Changes to the highway network to alleviate and manage congestion on the A4540 (as part of the DfT's 'Local Pinch Point Fund' schemes) are also expected to be delivered by the end of 2014/15 (financial year). Birmingham City Council (BCC) are currently in the process of designing these schemes but it is understood that these are likely to include capacity improvements at the Ashted Circus, Curzon Circle, Bordesley Circus, and Haden Circus junctions. In addition there are a number of changes within the local area which are expected as a result of Birmingham's 'Big City Plan' Eastside development programme, including the upgrade of the B4114 Jennens Road/Woodcock Street/Cardigan Street junction and the reopening of the Curzon Street/Cardigan Street junction.
- 8.6.45 The redeveloped Birmingham New Street station will improve access to public transport, and in particular access to services on the strategic and local rail network. The extension to the Midland Metro from Snow Hill station to New Street station will improve transport connections in the city centre, and into the city centre from the Black Country area.
- 8.6.46 Centro has aspirations for further extension to Midland Metro, including potential links to the proposed Curzon Street station, and for improved pedestrian linkage between Moor Street Queensway and New Street station. At the present time both of these schemes are unfunded.
- 8.6.47 Funding is in place for improvements to the cycle network through the Cycle City Ambitions Grant fund, although specific scheme details are unknown at present. Also the proposed development at Martineau Galleries will result in additional parking capacity in the vicinity of the proposed site for Curzon Street station.

- 8.6.48 No substantial changes are currently expected to the strategic rail network, taxi provision, public rights of way, and the canal network, other than those associated with committed developments. There are currently no equestrian routes or airports within the CFA and this is not expected to change in the future baseline.

### *Land use assumptions*

- 8.6.49 Planning applications which currently have approval in the Washwood Heath to Curzon Street area are listed in the table below. Committed developments in the city centre and Washwood Heath areas are discussed in further detail below.

Table 8-322: Summary of committed developments in the Washwood Heath to Curzon Street area

Location	Development	Floor space or no. dwellings
UK Mail Ltd, Wolseley Drive, Washwood Heath	Warehouse extension	4,350 m <sup>2</sup> and associated hard standing
Washwood Heath Freight Yard, North of Common Lane, Washwood Heath,	Advanced Conversion Technology & Anaerobic Digestion facility	Site area: 2.43 Ha
Railway Sidings, Aston Church Road	Change of use of part of site from car dismantling unit to a waste transfer station	Site area: 0.2 Ha site area
Unit 3 Pennine Way, Saltley	Change of use from general industry and storage to training centre	Site area: 0.58 Ha Internal floorspace: 4,829 m <sup>2</sup>
Nechells, Ladywood	Housing regeneration and the attraction of new investment.	Site area: 81 Ha
Duddeston Mill Road, Nechells, Birmingham	Phase One - Change of use of former railway sidings to form extension to metal recycling facility and ancillary development	-
Landor Street European Metal Recycling Ltd, Nechells Birmingham, B8 1AE	Phase Two - works to include remodelling part of the site	-
Mercedes Benz, Lawley Middleway, Birmingham, B4 7XH	Alterations to car park	Site area: 11,565 m <sup>2</sup>
Jennens Road, Lawley Middleway Curzon Street, Cardigan Street Land bounded by "Eastside Locks" Eastside, Birmingham B4 7RD	Mixed-use redevelopment of land at Eastside Locks	Site area: 143,350 m <sup>2</sup>
Land bounded by Gospel Street, Cardigan Street, Curzon Street and Digbeth Branch Canal, Eastside	Partial demolition of existing structures and erection of university accommodation with ancillary uses	Site area: 1.24 Ha
Curzon Park, land at Curzon Street	A mixed-use development comprising offices, residential, hotel, retail, medical	Site area: 130,000 m <sup>2</sup>
Cardigan Street, Land Adjoining Millennium Point, Eastside, Birmingham, B4 7RJ	Erection of a 5 storey building for education use	18,310 m <sup>2</sup>
Former Curzon Street Station, New Canal Street, Birmingham	Change of use to exhibition galleries, ancillary cafe and associated internal alterations	1,170 m <sup>2</sup>

Location	Development	Floor space or no. dwellings
Jennens Court, 250 Jennens Road, Birmingham, B5 5JR	Change of use to retail, finance and professional services.	Site area: 3,827 m <sup>2</sup>
Former Central Fire Station Corporation Street/Aston Street/Potter Street junction of Birmingham B4 7DD	Internal and external alterations, partial demolition, extensions and change of use	300 residential units: 831 m <sup>2</sup> commercial/leisure, 278 m <sup>2</sup> management/ amenity space
Land at New Canal Street, Fazeley Street, Banbury Street, Bartholomew Street,	University campus, concert hall, theatre, retail, food/drink, car parking, landscaping and associated works. Closure of Bartholomew and Banbury Street.	Site area: 55,000 m <sup>2</sup>
Land at New Canal Street, Fazeley Street, Banbury Street, Bartholomew Street,	Layout, scale, appearance and landscaping for phase 1 of the university campus and associated development	Site area: 1.7 Ha
Bordesley Street, Typhoo Wharf, Digbeth, Birmingham	Replace an extant planning permission for conversion and new build to form mixed use development	353 residential units: 522 m <sup>2</sup> , retail: 260m <sup>2</sup>
Masshouse Plot 7, (Land bounded by Dale End, Chapel Street, Moor Street Queensway and Priory Queensway)	Major mixed-use development	Site area: 70,907 m <sup>2</sup>
2 Masshouse Plaza, Birmingham, B5 5JE	Change of use from retail to residential space	Site area: 0.02 Ha
Manton & Reynolds Communal Heating Scheme	Erection of a building to accommodate a communal heating facility	Site area: 0.151 Ha
Land between Manton & Reynolds Tower Block Newbury Road Newtown		Internal floor space 79 m <sup>2</sup>
City Park Gate - Moor Street Queensway, Masshouse Lane Park Street City Birmingham	Approval of access, for the construction of a major mixed-use development	Site area: 93,700 m <sup>2</sup>
Plot 1, City Park Gate land at Park Street, Freeman Street Moor Street Queensway and Paternoster Row City Birmingham	Layout, scale, appearance and landscaping of plot 1 of city park gate	-
123-134 Digbeth 91-93 Allison Street & Land off Orwell Passage Digbeth Birmingham	Extended phase 1 proposals for the Beorma Quarter	-
The Midland Metro (Birmingham City Centre Extension)	Details for conditions attached to previous planning application	-
1 Martineau Place, Corporation Street, Birmingham, B2 4UW	The change of use of existing retail and office accommodation into a hotel	Site area: 5,347 m <sup>2</sup> Internal floor space: 13,584 m <sup>2</sup>

### City centre

8.6.50 The above table includes a number of major developments are planned at the proposed site for Curzon Street station, as part of the Eastside development programme, including:

- the Curzon Park scheme, a mixed use scheme consisting of office, hotel and retail uses, including 78,000m<sup>2</sup> of office space, a 120 bedroom hotel and 40,000m<sup>2</sup> of

retail floor space; and

- the Eastside City Park Gate scheme, a mixed use scheme consisting of office, restaurants and residential uses, including 120,000 m<sup>2</sup> of office space, 60,000m<sup>2</sup> 'food' floor space and 600 residential dwellings.

- 8.6.51 It should be noted that these developments are included in the future baseline due to their committed status, however with the delivery of the Proposed Scheme these developments will no longer take place as they would occupy land required for Curzon Street station and the alignment of the route on approach to the station. These developments, and the traffic associated with these developments, whilst included in the future baseline are not included in the assessment of the Proposed Scheme.
- 8.6.52 In addition to the Eastside developments, a major retail development is proposed at Martineau Galleries. The development will be located between the existing city centre area and Moor Street Queensway, and could include a car park with 2,000 spaces. Access will be facilitated from the southern end of Albert Street, with traffic routing via Moor Street Queensway.
- 8.6.53 The Big City Plan sets out five main areas of transformation within the city; each of which have their own masterplans, including the Eastside area where the Proposed Curzon Street station will be located. Opportunities for mixed-use development, including office, residential, learning and leisure space are identified for the Eastside area, with the Eastside City Park, which was opened in 2012, offering a key focus for development opportunities. Integrating the Eastside area into the wider city centre will be an important aspect for its future transformation.
- 8.6.54 To inform the future baseline conditions for the Birmingham city centre network, forecast matrices from the PRISM model were utilised for 2021, 2026 and 2041. These were adjusted to reflect local changes to the 2011 base year within the BCCM. This methodology is as described in the Regional Methodology and Assumptions section of the report. The following table shows the resultant background traffic growth factors between the 2012 baseline and the 2021, 2026 and 2041 forecasts years for the city centre area.

Table 8-323: Traffic growth factors, without (BCCM model)

Period	AM	PM
2012 – 2021	1.15	1.15
2012 - 2026	1.21	1.21
2012 - 2041	1.39	1.39

### Washwood Heath

- 8.6.55 There are no major committed developments or land use changes proposed within the Washwood Heath area.



- 8.6.56 To develop the future baseline conditions for the Washwood Heath area network, TEMPRO adjusted NTM growth factors were utilised for 2021, 2026 and 2041. The table below shows the resultant background traffic growth factors employed between the 2012 baseline and 2021, 2026 and 2041 forecast years within the modelling.

Table 8-324: Traffic growth factors (TEMPRO)

Period	AM	PM
2012 – 2021	1.17	1.17
2012 - 2026	1.28	1.28
2012 - 2041	1.48	1.47

### *Transport supply assumptions*

- 8.6.57 The future baseline transport supply conditions within the Washwood Heath to Curzon Street area will include highway, rail, bus and cycling schemes. The table below summarises committed changes to the transport network.

Table 8-325: Summary of consented changes in future baseline transport supply

Transport supply	Scheme	Delivery date
Highway Network	Birmingham Pinch Point Scheme Improvements (Bordesley Circus, Ashted Circus, Curzon Circle, Haden Circus)	By end of 2014/2015 financial year
	Colmore Circus Queensway and Corporation Street modifications as part of Midland Metro extension	Midland Metro Extension to be complete by Spring 2015
	Paradise Circus junction reconfiguration	2018
	Egress from car park onto Navigation Street to be closed and signalised access/egress on Hill Street	2015
Strategic Rail Network	Redevelopment of Birmingham New Street station as part of the Birmingham Gateway scheme	2015
Local Rail Network	Extension of the Midland Metro network from the current terminus at Snow Hill station to New Street station	Spring 2015
Local Bus/Coach services	Bus rapid transit from Birmingham City Centre to Birmingham International Airport	TBC, before 2021
	Birmingham Sprint Scheme	Start in 2015
Public Transport Interchanges	Redevelopment of Birmingham New Street station as part of the Birmingham Gateway scheme	2015
Pedestrian and Cycle Network	Cycle schemes to be funded by DfT Cycle City Ambition Grant funding	2016
Equestrians	No changes	N/A
Taxis	No changes	N/A
Canals	No changes	N/A
Parking	Loss of Curzon Street surface level car park due to Curzon Park and East City Park Gate schemes	TBC, before 2021

### *Strategic and local road network traffic flows*

- 8.6.58 Committed changes to the highway network within the Washwood Heath to Curzon Street area concern upgrades to the strategic road network, including junctions on the A4540, and highway changes in the vicinity of the redeveloped Birmingham New Street station and to accommodate the Midland Metro extension.
- 8.6.59 During 2013, BCC were awarded funding through the DfT's Pinchpoint Fund to relieve congestion and safety concerns at a series of key locations on the 'middle ring road'. By implementing these measures, there will be improved access to the Central Business District, greater levels of accessibility to other key transport points, such as New Street station, and support for the Birmingham City Centre Enterprise Zone.
- 8.6.60 The schemes associated with the DfT's Pinchpoint funding are included as part of the future baseline highway network and are as follows:
- improvements at Bordesley Circus, to include the provision of a left slip on to the Small Heath Highway, the signalisation of the Bordesley Middleway, Coventry Road West and Small Heath Highway arms and the provision of a one-way cut through ('hamburger' arrangement) linking the Small Heath Highway entry arm and Watery Lane exit arm;
  - improvements to Ashted Circus, to include the provision of left slips on the Dartmouth Middleway and Lawley Middleway approaches;
  - improvements to Curzon Circle, to fully signalise the junction; and
  - Haden Circus, signalisation of roundabout, with 'half-hamburger' arrangement including the provision of slip road between Belgrave Middleway and Highgate.
- 8.6.61 Additional highway schemes that are included as part of the future baseline assessments are as follows:
- improvements at the St Chads roundabout provide a signalised junction;
  - improvements at junction of Cardigan Street/Jennens Road, as part of the Eastside redevelopment. As part of this scheme, the Cardigan Street/Jennens Road junction is currently being upgraded to an all movement signalised junction;
  - Holloway Circus, -left-slips on Holloway Head and Smallbrook Queensway and signalisation of Bristol Street approach;
  - modifications to Colmore Circus Queensway and Corporation Street, as part of the scheme to extend the Midland Metro from Birmingham Snow Hill Station to Birmingham New Street Station;
  - extension of Midland Metro from New Street station to Centenary Square via Paradise Circus;

- reconfiguration of Paradise Circus junction, as part of the redevelopment of Paradise Forum area;
- access to car park at Navigation Street to be closed (egress only) and signalised access/egress on Hill Street, as part of the 'Birmingham Gateway' scheme at New Street Station;
- full signalisation of Ladywood Circus and modification into a half-hamburger layout; and
- signalisation of the Bath Row/Cregoe Street priority junction.

8.6.62 The above schemes have been included in the future baseline BCCM models to provide a forecast of traffic conditions in 2021, 2026 and 2041. The following sections summarise the findings, in terms of the overall network performance, and in terms of link and junction performance on the strategic and local road networks.

### Overall network performance

8.6.63 As discussed earlier in this report, the BCCM model has been used as the basis for the assessment of the impacts of the Proposed Scheme. The tables below summarise the overall network statistics for the BCCM model for the future baseline years of 2021, 2026 and 2041. As would be expected the tables show that in the future years as the number of trips in the BCCM model increase, the queuing, travel times and average speeds increase.

Table 8-326: Future baseline network performance statistics AM (08:00-09:00) peak

Statistics	2021 future baseline	2026 future baseline	2041 future baseline
Transient Queues (PCU.hrs)	1199.2	1286.0	1534.6
Overcapacity Queues (PCU.hrs)	1077.3	1296.3	2062.5
Cruise Time (PCU.hrs)	2735.9	2846.9	3199.4
Total Travel Time (PCU.hr)	5012.4	5429.2	6796.5
Travel Distance (PCU.km)	120078.6	124625.0	139159.0
Average Speed (kph)	24.0	23.0	20.5
Total Trips Loaded	42624	44252	48901

Table 8-327: Future baseline network performance statistics, PM (17:00-18:00) peak

Statistics	2021 future baseline	2026 future baseline	2041 future baseline
Transient Queues (PCU.hr)	1190.0	1270.7	1491.5
Overcapacity Queues (PCU.hr)	550.2	648.3	1042.1
Cruise Time (PCU.hr)	2683.7	2804.0	3089.3
Total Travel Time (PCU.hr)	4423.9	4722.9	5623.0
Travel Distance (PCU.km)	116537.2	121,661.9	133,794.7
Average Speed (kph)	26.3	25.8	23.8
Total Trips Loaded	41423.8	43,280.9	47,385.3

8.6.64 The following sections review in detail the performance of the strategic and local road for the future baseline years.

### **Strategic road network - links**

8.6.65 The tables below show the future baseline traffic for the strategic road network within the Washwood Heath to Curzon Street area for 2021, 2026 and 2041, relative to 2012.

#### *City centre*

8.6.66 The following tables show the future baseline traffic for the strategic road network within the city centre area for 2021, 2026 and 2041, relative to 2012. Traffic flows and conditions have been extracted from the BCCM model, and include for the committed developments and highway schemes discussed above.

8.6.67 The tables below shows that the A38 (M), A4540 Dartmouth Middleway, A4540 Lawley Middleway, A45 Small Heath Highway and A34 Stratford Road are operating at or over capacity in the existing case in the AM (08:00-09:00) and/or PM (17:00-18:00) peak. The A4540 Highgate Middleway, A4540 Newtown Middleway and A4540 Bordesley Middleway are also expected to be approaching or operating at capacity in the future baseline.

#### *Washwood Heath*

8.6.68 The following tables show the future baseline traffic for the strategic road network within the Washwood Heath area for 2021, 2026 and 2041, relative to 2012. Traffic flows and conditions include for the planned and committed developments and highway through the TEMPRO growth factors, as discussed above.

Table 8-328: City centre strategic road network future baseline flows (vehicles) - AM (08:00-09:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A47 Nechells Parkway between Melvina Road and A4540	EB	528	109	24%	838	100	26%	863	106	27%	928	122	30%
	WB	759	91	55%	589	120	27%	617	127	29%	691	145	32%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	1807	157	77%	2011	174	87%	2100	183	90%	2381	210	103%
	SB	4278	199	45%	4780	230	50%	4962	244	52%	5447	286	57%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	2413	202	32%	2835	247	38%	2944	260	39%	3139	282	42%
	SB	4529	240	59%	4849	265	63%	4864	265	63%	4906	305	64%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1294	102	76%	1210	113	72%	1246	116	74%	1347	126	80%
	WB	1525	114	44%	1503	85	42%	1709	114	48%	2135	168	61%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1439	171	77%	1476	148	78%	1560	162	83%	1826	211	98%
	SB	1491	139	65%	1834	188	81%	1885	192	84%	2054	189	92%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1318	154	55%	1277	121	54%	1348	133	57%	1563	176	68%
	SB	1667	150	45%	2012	202	54%	2076	207	56%	2149	202	58%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1515	192	65%	1638	177	30%	1724	190	31%	1959	238	36%
	SB	1775	187	103%	2097	216	103%	2092	219	103%	2105	210	104%
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1975	174	83%	1796	144	94%	1838	153	96%	1933	185	102%
	SB	1996	227	62%	2033	241	63%	2077	245	65%	2085	238	65%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1682	130	50%	1503	96	44%	1530	101	45%	1596	118	48%
	SB	1691	165	43%	2021	200	52%	1863	186	48%	1757	173	45%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1510	75	82%	1630	86	53%	1653	93	54%	1790	129	59%
	SB	1332	138	46%	1701	216	65%	1724	221	68%	1675	218	75%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1320	58	72%	1478	87	92%	1547	100	99%	1555	143	101%
	SWB	1085	61	29%	1254	128	35%	1304	138	36%	1539	170	43%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1073	112	80%	1144	131	35%	1186	139	37%	1306	165	41%
	SB	1171	115	103%	1269	133	112%	1301	141	115%	1377	160	123%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	1026	113	61%	1048	126	76%	1075	132	80%	1148	150	90%
	SB	796	201	74%	947	217	89%	1009	228	95%	1191	260	113%

Table 8-329: City centre strategic road network future baseline flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A47 Nechells Parkway between Melvina Road and A4540	EB	668	44	27%	599	45	18%	628	46	19%	696	52	21%
	WB	550	41	33%	696	48	28%	719	50	29%	742	55	31%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	2952	55	119%	3172	61	128%	3291	63	133%	3569	71	145%
	SB	2379	123	25%	2728	141	29%	2919	150	31%	3384	174	36%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	3630	82	45%	3979	93	50%	3995	94	50%	4304	105	54%
	SB	3160	160	41%	3490	179	45%	3556	176	46%	3777	184	49%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1457	33	81%	1508	35	84%	1554	36	86%	1570	38	87%
	WB	1116	11	30%	1107	14	28%	1232	24	31%	1385	42	36%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1644	18	103%	1627	19	105%	1760	21	107%	1786	22	109%
	SB	1334	30	53%	1513	34	60%	1564	35	63%	1690	39	68%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1492	18	53%	1412	18	51%	1517	20	55%	1521	20	56%
	SB	1347	32	34%	1597	37	40%	1657	39	42%	1777	43	45%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1564	42	59%	1512	45	26%	1655	49	28%	1726	52	29%
	SB	1404	33	80%	1515	37	75%	1592	40	81%	1711	46	87%



Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1853	32	67%	1739	34	93%	1864	38	100%	1912	41	103%
	SB	1710	35	49%	1765	39	50%	1772	41	50%	1767	43	50%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1141	15	32%	1068	16	30%	1138	18	32%	1164	20	33%
	SB	1433	26	34%	1609	29	38%	1607	31	38%	1455	33	35%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1408	22	68%	1440	25	45%	1543	27	48%	1695	35	53%
	SB	1308	47	49%	1764	57	73%	1814	59	78%	1840	67	86%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1467	19	70%	1584	27	86%	1660	29	92%	1781	34	100%
	SWB	1305	36	34%	1714	44	44%	1790	47	46%	2049	58	53%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1094	43	68%	1201	50	35%	1267	53	37%	1430	63	41%
	SB	1392	31	114%	1428	36	117%	1472	38	121%	1530	45	126%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	614	70	40%	702	76	60%	745	79	65%	858	87	81%
	SB	1098	67	88%	1159	60	94%	1194	62	97%	1267	69	103%

Table 8-330: Washwood Heath strategic road network future baseline flows (vehicles) - AM (0800-09:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	1597	62	50%	1867	73	58%	2051	73	64%	2357	92	74%
	SB	1212	50	38%	1418	59	44%	1557	59	49%	1789	74	56%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	639	96	18%	747	112	21%	821	112	23%	943	142	26%
	WB	1483	165	41%	1734	193	48%	1904	193	53%	2189	244	61%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	603	135	17%	705	158	20%	774	158	22%	890	199	25%
	WB	1379	154	38%	1613	180	45%	1771	180	49%	2036	227	57%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	447	114	12%	523	133	15%	574	133	16%	660	168	18%
	SB	1098	126	31%	1284	147	36%	1410	147	39%	1621	186	45%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	948	96	30%	1109	112	35%	1217	112	38%	1399	142	44%
	SB	1656	108	52%	1936	126	61%	2126	126	66%	2444	159	76%

Table 8-331: Washwood Heath strategic road network future baseline flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	1467	36	46%	1712	42	54%	1879	42	59%	2152	52	67%
	SB	1569	47	49%	1832	55	57%	2011	55	63%	2303	70	72%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	932	83	26%	1088	97	30%	1194	97	33%	1368	122	38%
	WB	756	81	21%	883	95	25%	969	95	27%	1110	119	31%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	1172	80	33%	1368	93	38%	1502	93	42%	1720	117	48%
	WB	726	72	20%	848	84	24%	930	84	26%	1066	106	30%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	975	65	27%	1138	76	32%	1249	76	35%	1431	95	40%
	SB	476	45	13%	556	53	15%	610	53	17%	699	66	19%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	1570	55	49%	1833	64	57%	2012	64	63%	2304	81	72%
	SB	1058	54	33%	1235	63	39%	1356	63	42%	1553	79	49%

- 8.6.69 The tables above shows that the strategic road network in the Washwood Heath area is operating within capacity in the existing case in the AM (08:00-09:00) and/or PM (17:00-18:00) peak. All links are also expected to be within capacity in the future baseline.

#### **Local road network - links**

- 8.6.70 The tables below show the future baseline traffic for the local road network within the Washwood Heath to Curzon Street area for 2021, 2026 and 2041, relative to 2012.

##### *City centre*

- 8.6.71 The following tables show the future baseline traffic for the local road network within the city centre area for 2021, 2026 and 2041, relative to 2012. Traffic flows and conditions have been extracted from the BCCM model, and include for the committed developments and highway schemes discussed above.

- 8.6.72 Table 8-332 and Table 8-333 below show that, generally, the local road network continues to operate within capacity even in 2041. The exceptions are Vauxhall Road (between St. James' Place and the A4540 at Curzon Circle) and B4114 Jennens Road, which operate over capacity currently and in the future baseline. Additionally, B4100 Moor Street Queensway (between James Watt Queensway and Masshouse Lane), Curzon Street, and B4100 Moor Street will operate close to or over capacity in the future baseline.

##### *Washwood Heath*

- 8.6.73 The following tables (Table 8-334 and Table 8-335) show the future baseline traffic for the local road network within the Washwood Heath area for 2021, 2026 and 2041, relative to 2012.

Table 8-332: City centre local road network future baseline flows (vehicles) - AM (08:00-09:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	593	13	48%	521	15	43%	526	16	43%	539	18	45%
	WB	598	63	92%	623	74	82%	640	78	87%	680	93	102%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	308	62	19%	234	39	12%	236	41	12%	212	41	11%
	WB	628	45	19%	759	61	23%	832	64	25%	855	69	26%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	321	79	12%	351	56	12%	315	56	11%	287	56	10%
	WB	229	63	106%	235	62	107%	236	63	107%	243	65	110%
Cardigan Street between B4114 Jennens Road and Curzon Street (temporarily closed – baseline)	NB	0	0	0%	7	1	0%	13	1	1%	10	1	1%
	SB	0	0	0%	59	6	12%	100	9	21%	226	20	46%
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	147	12	28%	231	15	40%	302	18	50%	451	33	70%
	WB	279	16	12%	383	23	20%	362	23	20%	317	22	21%
Curzon Street between Cardigan Street and New Canal Street	EB	141	13	9%	242	17	20%	321	21	27%	460	34	39%
	WB	223	17	2%	405	37	5%	446	42	5%	539	56	6%
New Canal Street between Curzon Street and Fazeley Street	NB	157	13	9%	258	17	15%	338	21	20%	490	35	29%
	SB	226	17	14%	423	37	26%	465	42	28%	551	55	34%
Banbury Street	EB	64	3	4%	82	4	5%	84	4	5%	88	5	5%
	WB	56	2	9%	29	3	6%	27	3	6%	33	4	8%
Andover Street	NB	15	0	2%	20	0	4%	21	0	4%	24	0	5%
	SB	52	0	6%	50	0	6%	51	0	6%	54	0	7%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
Fazeley Street between Andover Street and New Canal Street	EB	160	14	10%	513	47	31%	542	52	33%	572	56	35%
	WB	89	5	11%	126	10	21%	131	11	22%	125	13	26%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	204	18	25%	462	40	52%	480	43	54%	411	36	58%
	WB	69	5	4%	173	16	9%	183	17	10%	164	17	9%
New Bartholomew Street	SB	23	1	2%	26	1	2%	28	1	2%	32	1	2%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	69	8	5%	79	9	6%	83	10	6%	96	11	7%
	WB	44	4	3%	51	5	4%	53	5	4%	61	6	5%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	71	5	10%	96	5	14%	103	6	16%	108	6	20%
	WB	12	3	1%	15	3	1%	12	3	1%	16	3	1%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	70	8	5%	81	9	6%	85	10	7%	97	11	7%
	SB	109	24	8%	125	28	10%	132	29	10%	152	33	12%
B4100 between Meriden Street and Oxford Street	EB	432	109	20%	325	110	17%	345	110	17%	457	122	21%
	WB	316	84	8%	453	91	10%	483	93	11%	653	109	14%
B4100 between Park Street and Meriden Street	EB	843	166	18%	882	174	19%	1004	178	21%	1278	202	26%
	WB	930	211	35%	1171	222	42%	1259	227	45%	1482	238	51%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	997	97	31%	1075	101	35%	1113	103	36%	1144	106	36%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
B4100 Park Street between Moor Street and Moat Lane	NB	781	201	58%	886	208	66%	890	209	66%	935	208	70%
	SB	722	156	46%	629	160	42%	667	160	44%	766	170	49%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	761	154	53%	851	151	57%	855	153	58%	890	153	102%
Masshouse Lane	EB	184	113	33%	197	107	34%	196	106	34%	198	103	33%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	619	77	31%	756	130	35%	760	132	35%	792	132	37%
	SB	116	105	17%	108	95	16%	108	94	16%	110	92	16%
B4100 Moor Street	EB	78	67	65%	90	77	76%	91	77	76%	93	75	76%
	WB	659	77	41%	756	77	46%	762	79	47%	807	79	49%

Table 8-333: City centre local road network future baseline flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	809	12	66%	781	14	64%	799	15	65%	817	18	67%
	WB	500	9	50%	517	10	76%	539	11	82%	580	13	90%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	535	21	29%	447	19	22%	480	19	23%	434	20	21%
	WB	431	40	14%	532	42	16%	592	44	18%	660	46	20%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	289	38	10%	236	36	9%	227	36	8%	130	35	5%
	WB	515	56	89%	601	58	102%	603	60	102%	609	64	104%
Cardigan Street between B4114 Jennens Road and Curzon Street (temporarily closed – baseline)	NB	0	0	0%	11	0	1%	14	0	1%	73	3	4%
	SB	0	0	0%	3	0	1%	3	0	1%	7	0	1%
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	470	3	61%	440	3	82%	470	3	88%	471	3	91%
	WB	166	1	8%	156	2	9%	232	3	13%	293	6	18%
Curzon Street between Cardigan Street and New Canal Street	EB	394	3	25%	400	3	36%	436	4	39%	516	4	44%
	WB	99	1	2%	112	3	2%	183	4	3%	280	8	4%
New Canal Street between Curzon Street and Fazeley Street	NB	416	3	23%	446	3	25%	484	4	27%	605	4	34%
	SB	154	1	9%	191	3	11%	271	4	15%	425	8	24%
Banbury Street	EB	60	1	3%	8	1	1%	11	1	1%	57	1	3%
	WB	50	1	9%	57	1	9%	60	1	10%	60	1	10%



Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
Andover Street	NB	147	0	19%	164	0	22%	169	0	23%	178	0	25%
	SB	131	0	16%	144	0	18%	165	0	21%	145	0	19%
Fazeley Street between Andover Street and New Canal Street	EB	140	2	9%	234	3	14%	251	4	15%	269	7	16%
	WB	124	3	14%	199	4	22%	278	4	23%	260	5	29%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	280	4	32%	285	4	32%	241	3	27%	138	3	16%
	WB	116	2	6%	183	3	9%	194	3	10%	202	4	10%
New Bartholomew Street	SB	29	1	2%	33	1	3%	35	1	3%	40	1	3%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	63	1	5%	72	1	6%	76	1	6%	88	1	7%
	WB	70	2	5%	81	2	6%	85	2	7%	85	2	7%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	78	3	10%	92	4	13%	96	4	13%	103	5	16%
	WB	14	1	1%	19	1	1%	15	1	1%	20	1	1%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	75	6	6%	86	7	7%	91	7	7%	104	8	16%
	SB	225	8	17%	259	9	20%	272	10	21%	313	11	2%
B4100 between Meriden Street and Oxford Street	EB	820	92	32%	1018	91	38%	1040	92	39%	1069	93	40%
	WB	483	70	10%	572	85	12%	583	86	12%	686	92	14%
B4100 between Park Street and Meriden Street	EB	1242	119	24%	1487	130	29%	1534	130	29%	1713	133	32%
	WB	1029	150	36%	1266	168	44%	1292	170	44%	1463	177	49%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	867	52	26%	983	49	29%	980	49	29%	960	50	28%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
B4100 Park Street between Moor Street and Moat Lane	NB	704	148	49%	864	166	62%	875	168	63%	930	175	68%
	SB	823	118	44%	991	127	52%	1025	128	54%	1093	130	56%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	946	107	65%	1045	113	71%	1044	115	71%	1037	122	71%
Masshouse Lane	EB	363	122	43%	353	117	42%	354	118	42%	355	118	42%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	635	22	29%	799	84	34%	805	85	35%	821	93	36%
	SB	253	102	24%	300	99	26%	308	99	27%	332	98	28%
B4100 Moor Street	EB	218	66	69%	278	76	86%	285	76	88%	310	75	92%
	WB	593	22	34%	743	28	43%	751	30	43%	806	38	47%

Table 8-334: Washwood Heath local road network future baseline flows (vehicles) - AM (08:00-09:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
Wolseley Drive	EB	64	8	6%	75	9	7%	82	10	7%	94	12	8%
	WB	125	6	11%	146	7	13%	161	8	14%	185	9	16%
Alstom Access Road south of the A47 Heartlands Parkway	NB	22	12	2%	26	14	2%	28	15	2%	32	18	2%
	SB	26	9	2%	30	11	2%	33	12	3%	38	13	3%
Aston Church Road	NB	333	35	26%	389	41	30%	428	45	33%	492	52	38%
	SB	485	42	37%	567	49	44%	623	54	48%	716	62	55%
Arley Road	NB	85	15	7%	99	17	8%	109	19	8%	125	22	10%
	SB	82	11	6%	96	13	7%	106	15	8%	121	17	9%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	305	63	20%	357	74	23%	392	81	26%	450	93	29%
	SB	418	60	27%	489	70	32%	537	77	35%	617	89	40%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	449	57	29%	525	67	34%	577	73	38%	663	84	43%
	SB	566	60	37%	662	70	43%	727	77	48%	835	89	55%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	73	11	6%	86	13	6%	94	14	7%	108	16	8%
	SB	34	13	3%	39	15	3%	43	17	3%	50	19	4%
Dorset Road between Arley Road and Pennine Way	EB	49	3	4%	58	3	4%	63	4	5%	73	4	6%
	WB	31	1	2%	36	1	3%	39	1	3%	45	1	3%
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	686	92	45%	802	108	52%	881	118	58%	1013	136	66%
	WB	830	98	54%	971	115	63%	1066	126	70%	1225	145	80%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	727	101	48%	850	118	56%	934	130	61%	1073	149	70%
	WB	816	87	53%	954	102	62%	1048	112	68%	1205	128	79%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	265	50	20%	310	58	24%	340	64	26%	391	74	30%
	SWB	343	44	26%	401	51	31%	440	56	34%	506	65	39%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	320	23	25%	374	27	29%	411	30	32%	472	34	36%
	WB	386	16	30%	451	19	35%	496	21	38%	570	24	44%
Melvina Road	NB	597	55	66%	698	64	78%	767	71	85%	881	81	98%
	SB	494	69	55%	578	81	64%	634	89	70%	729	102	81%

Table 8-335: Washwood Heath local road network future baseline flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
Wolseley Drive	EB	119	3	10%	139	4	12%	152	4	13%	175	4	15%
	WB	62	8	5%	72	9	6%	79	10	7%	91	12	8%
Alstom Access Road south of the A47 Heartlands Parkway	NB	15	2	1%	18	2	1%	19	3	1%	22	3	2%
	SB	7	3	1%	8	4	1%	9	4	1%	10	4	1%
Aston Church Road	NB	580	31	45%	677	36	52%	743	40	57%	851	45	65%
	SB	438	23	34%	511	27	39%	561	29	43%	643	34	49%
Arley Road	NB	107	6	8%	125	6	10%	137	7	11%	157	8	12%
	SB	71	10	5%	83	12	6%	91	13	7%	104	15	8%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	459	46	30%	536	54	35%	588	59	38%	674	68	44%
	SB	332	41	22%	388	48	25%	425	53	28%	487	60	32%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	744	41	49%	869	48	57%	953	53	62%	1092	60	71%
	SB	558	42	36%	651	49	43%	715	54	47%	819	62	54%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	17	10	1%	20	12	2%	22	13	2%	25	15	2%
	SB	63	2	5%	74	2	6%	81	3	6%	93	3	7%
Dorset Road between Arley Road and Pennine Way	EB	13	1	1%	15	1	1%	16	1	1%	19	1	1%
	WB	54	0	4%	64	0	5%	70	0	5%	80	0	6%
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	794	70	52%	927	82	61%	1017	90	66%	1165	103	76%
	WB	746	63	49%	871	74	57%	956	81	62%	1095	92	72%

Location	Direction	Baseline flow											
		2012			2021			2026			2041		
		All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC	All vehicles	HGV	VC
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	912	60	60%	1065	70	70%	1169	77	76%	1339	88	87%
	WB	775	62	51%	905	72	59%	993	79	65%	1137	91	74%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	414	21	32%	483	25	37%	531	27	41%	608	31	47%
	SWB	293	14	23%	342	16	26%	375	18	29%	430	21	33%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	372	6	29%	434	7	33%	477	8	37%	546	9	42%
	WB	213	9	16%	249	11	19%	273	12	21%	313	13	24%
Melvina Road	NB	813	40	90%	949	47	105%	1042	51	116%	1193	59	133%
	SB	324	17	36%	378	20	42%	415	22	46%	476	25	53%

- 8.6.74 The tables above show that the local road network in the Washwood Heath area generally operates within capacity even in 2041. The exceptions to this are Melvina Road and Duddeston Mill Road, which are forecast to operate over capacity in the future baseline.

### *Junction performance – future baseline*

#### **Strategic road network - junctions**

##### *City centre*

- 8.6.75 As part of the traffic assessment work, junctions on the strategic road network in the city centre area that may be substantially affected by the Proposed Scheme have been identified as follows:

- Ashted Circus (four arm roundabout);
- Curzon Circle (signalised crossroads); and
- Garrison Circus (four arm roundabout).

- 8.6.76 To consider the future baseline performances of Ashted Circus, Curzon Circle and Garrison Circus, assessments have been completed at each of the junctions, using ARCADY 7 or LINSIG v3. Traffic flows for the future baseline assessments have been extracted from the BCCM model.

- 8.6.77 The tables below show the resultant performance in the 2021, 2026 and 2041 future baseline cases. The tables show the Ratio to Flow Capacity (RFC) or Degree of Saturation (DoS), Maximum Queue (PCU), changes in flow relative to the baseline, and delays (PCU-min) across all lanes.

##### *Ashted Circus*

- 8.6.78 Ashted Circus currently forms a four arm roundabout at the junction of the A4540 with the A47 Nechells Parkway and B4114 Jennens Road. As part of the DfT's Pinchpoint funding scheme improvements in Birmingham City Centre, Ashted Circus will be upgraded to include for the provision of left slips on the Dartmouth Middleway and Lawley Middleway approaches.

- 8.6.79 The improvements to Ashted Circus are expected to be delivered by 2015, and have therefore been accounted for in the modelling of the 2021, 2026 and 2041 future baseline. The following table summarises the results of the modelling for Ashted Circus in the 2021, 2026 and 2041 future baseline.

Table 8-336: Ashted Circus baseline modelling results

<b>08:00-09:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>
A4540 Dartmouth Middleway (N)	1655	0.99	27	1809	0.71	3	1862	0.71	3	1885	0.72	3
A47 Nechells Parkway (E)	804	0.55	1	936	0.74	3	862	0.71	3	928	0.78	4
A4540 Lawley Middleway (S)	1613	0.90	9	1403	0.51	1	1486	0.54	1	1743	0.65	2
B4114 Jennens Road (W)	356	0.33	1	234	0.22	0	235	0.23	0	211	0.24	0
Total	4428		38	4382		7	4445		7	4767		9
<b>17:00-18:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>
A4540 Dartmouth Middleway (N)	1305	0.82	5	1464	0.54	1	1518	0.56	1	1604	0.59	2
A47 Nechells Parkway (E)	570	0.33	1	599	0.37	1	627	0.39	1	695	0.45	1
A4540 Lawley Middleway (S)	1957	0.95	16	1344	0.44	1	1438	0.47	1	1478	0.49	1
B4114 Jennens Road (W)	571	0.59	2	447	0.35	1	479	0.39	1	434	0.37	1
Total	4403		23	3854		4	4062		4	4211		5



- 8.6.80 The results show that Ashted Circus is predicted to operate within capacity in all future baseline scenarios, in both the AM (08:00-09:00) and PM (17:00-18:00) peak periods. The results also show that in the future baseline there will generally be an improvement in operation compared to the 2012 baseline, due the implementation of the improvement scheme at this junction as part of the DfT's Pinchpoint programme.

*Curzon Circle*

- 8.6.81 Curzon Circle currently forms a four arm roundabout at the junction of the A4540 with Vauxhall Road and Curzon Street. As part of the DfT Pinch-point funding programmes, the junction will be upgraded to a four arm signalised crossroads.
- 8.6.82 The improvements to Curzon Circle are expected to be delivered by 2015, and have therefore been accounted for in the modelling of the 2021, 2026 and 2041 future baseline. The following table summarises the results of the modelling for Curzon Circle in the 2021, 2026 and 2041 future baseline.

Table 8-337: Curzon Circle baseline modelling results

<b>08:00-09:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
Curzon Street	1763	0.98	23	305	110	26	376	78	12	540	131	88
A4540 Lawley Middleway (N)	598	1.02	22	2379	146	452	2377	147	445	2379	188	178
Vauxhall Road	1989	0.92	11	717	143	140	739	141	143	799	185	221
A4540 Lawley Middleway (S)	159	0.34	1	1983	118	184	2036	118	212	2174	142	116
Total	4509		56	5384		802	5528		812	5892		603
<b>17:00-18:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2021 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
Curzon Street	1432	0.82	5	676	117	81	715	118	86	728	128	112
A4540 Lawley Middleway (N)	509	0.60	2	1564	114	132	1646	116	176	1771	164	122
Vauxhall Road	2231	0.93	12	529	90	19	553	90	20	597	102	33
A4540 Lawley Middleway (S)	564	1.37	84	1784	117	158	1914	116	208	1966	163	166
Total	4736		102	4553		389	4828		489	5062		432

- 8.6.83 The results show that Curzon Circle will operate over the optimum capacity threshold (0.90 DoS) in both the AM (08:00-09:00) and PM (17:00-18:00) peaks from 2021, with the performance of the junction generally deteriorating in the future baselines. In particular, long queuing on the A4540 Lawley Middleway and Vauxhall Road arms is expected in the AM (08:00-09:00) peak (08:00-09:00). In the PM (17:00-18:00) peak, the most severe congestion is expected on the A4540 Lawley Middleway and Curzon Street arms.
- 8.6.84 The queuing levels forecast on the A4540 Lawley Middleway (S) are likely to result in 'blocking back' to Ashted Circus and Garrison Circus in the AM (08:00-09:00) and PM (17:00-18:00) peaks in the 2026 and 2041 future baselines, as well as in the 2021 AM (08:00-09:00) peak for Ashted Circus.
- 8.6.85 It should be noted that Curzon Circle is forecast to operate over capacity with its current layout. The scheme to be delivered as part of the DfT's Pinchpoint funding, and the signalisation of other junctions provide BCC with greater control of conditions on the network even though substantial queues are forecast.

*Garrison Circus*

- 8.6.86 Garrison Circus forms a four arm roundabout at the junction of the A4540 with Garrison Lane and Great Barr Street. No improvements to this junction are expected in the future baseline compared to the 2012 baseline.
- 8.6.87 The following table summarises the results for Garrison Circus in the 2021, 2026 and 2041 future baseline.

Table 8-338: Garrison Circus baseline modelling results

<b>08:00-09:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>
A4540 Lawley Middleway (N)	2497	0.78	4	2312	0.76	3	2346	0.76	4	2357	0.77	4
Garrison Lane	576	0.92	9	481	0.77	4	495	0.75	3	525	0.80	4
A4540 Watery Lane Middleway (S)	1651	1.06	71	1488	0.98	21	1514	1.00	29	1580	1.11	102
Great Barr Street	260	1.19	29	572	2.23	229	412	1.74	111	498	1.88	220
Total	4984		113	4853		257	4767		147	4960		330
<b>17:00-18:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>
A4540 Lawley Middleway (N)	2098	1.02	51	2082	1.07	91	2103	1.08	98	2123	1.08	97
Garrison Lane	548	0.92	8	506	0.97	13	537	1.04	22	577	1.01	19
A4540 Watery Lane Middleway (S)	1169	1.37	207	1015	1.28	134	1083	1.41	225	1099	1.59	311
Great Barr Street	586	1.06	30	681	1.21	78	704	1.25	97	590	1.00	19
Total	4401		296	4284		316	4427		441	4389		446

8.6.88 The results show that Garrison Circus will operate at/over the optimum capacity threshold in all future baselines, with substantial congestion on the A4540 Watery Lane Middleway (south) and Great Barr Street arms in the 2026 and 2041 AM (08:00-09:00) peak cases. The A4540 Lawley Middleway (north), A4540 Watery Lane Middleway (south) and Great Barr Street arms will all experience long queues in the 2021, 2026 and 2041 future baseline.

8.6.89 The queuing levels forecast on the A4540 Watery Lane Middleway (south), in the 2021, 2026 and 2041 PM (17:00-18:00) peak at Garrison Circus, are likely to have an impact at Bordesley Circus to the south.

*Washwood Heath*

8.6.90 As part of the traffic assessment work, junctions on the strategic road network in the Washwood Heath area that may be substantially affected by the Proposed Scheme have been identified as follows:

- A4040 Bromford Lane/Wolseley Drive (signalised crossroads);
- A47 Heartlands Parkway/Aston Church Road (four arm roundabout); and
- A47/B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road (four arm roundabout).

8.6.91 To consider the future baseline performances of these junctions, assessments have been completed using ARCADY 7 or LINSIG v3 for 2021, 2026 and 2041. Traffic flows are based on the traffic surveys undertaken for the Proposed Scheme, with growth applied as described earlier in the report.

8.6.92 The results for 2021, 2026 and 2041 future baseline relative to 2012 are presented in the tables below.

*A4040 Bromford Lane/Wolseley Drive*

8.6.93 Vehicular access to and from the proposed Washwood Heath Depot will be via Wolseley Drive. This road connects with the strategic road network at the A4040 Bromford Lane, and local road network at Bromford Road, via a signalised crossroads junction.

8.6.94 The following table summarises the results for the A4040 Bromford Lane/Wolseley Drive junction in the 2021, 2026 and 2041 future baseline.

Table 8-339: A4040 Bromford Lane/Wolseley Drive results

<b>08:00-09:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
A4040 Bromford Lane (N)	1392	86	41	1626	104	75	1786	134	181	2054	153	394
Bromford Road	696	86	15	815	107	54	894	134	146	1027	143	172
A4040 Bromford Lane (S)	989	59	23	1156	64	27	1270	64	28	1460	111	101
Wolseley Drive	75	26	1	87	30	1	95	33	2	110	19	1
Total	3152		79	3684		157	4045		356	4651		669
<b>17:00-18:00</b>	<b>2012 baseline</b>			<b>2021 future baseline</b>			<b>2026 future baseline</b>			<b>2041 future baseline</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
A4040 Bromford Lane (N)	1654	74	36	1930	86	50	2118	94	65	2427	107	163
Bromford Road	382	73	6	446	86	10	490	94	14	560	107	37
A4040 Bromford Lane (S)	961	42	15	1122	49	19	1231	53	22	1410	61	27
Wolseley Drive	123	56	3	144	65	3	157	71	4	180	81	5
Total	3120		60	3642		82	3996		104	4577		232

- 8.6.95 The results show that the junction is forecast to operate over capacity on the A4040 Bromford Lane (north) and Bromford Road approaches in the AM (08:00-09:00) and PM (17:00-18:00) peaks in 2026 and 2041, and in the AM (08:00-09:00) peak only in 2021.

*A47 Heartlands Parkway/Aston Church Road roundabout*

- 8.6.96 The following table summarises the results for the A47 Heartlands Parkway/Aston Church Road roundabout in the 2021 future baseline. It is anticipated that this junction will only be affected by the proposed scheme during construction, and therefore future baseline results for 2021 are shown only.

Table 8-340: A47 Heartlands Parkway/Aston Church Road roundabout modelling results

08:00-09:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (All PCU)	Flow/ capacity RFC	Max queue	Flow (All PCU)	Flow/ capacity RFC	Max queue
A47 Heartlands Parkway (N)	1289	0.61	2	1507	0.72	3
Aston Church Road (E)	534	0.39	1	625	0.52	1
A47 Heartlands Parkway (S)	435	0.22	0	509	0.27	0
Aston Church Road (W)	248	0.23	0	289	0.30	1
Total	2506		3	2930		5
17:00-18:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A47 Heartlands Parkway (N)	615	0.31	0	718	0.37	1
Aston Church Road (E)	479	0.26	0	558	0.31	0
A47 Heartlands Parkway (S)	1019	0.43	1	1189	0.52	1
Aston Church Road (W)	487	0.53	1	569	0.69	2
Total	2600		3	3034		4

- 8.6.97 The results show that the junction is forecast to operate within capacity in 2021, in both the AM (08:00-09:00) and PM (17:00-18:00) peak periods.

*A47/B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road roundabout*

8.6.g8 The following table summarises the results for the A47/B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road roundabout in the 2021 future baseline. It is anticipated that this junction will only be affected by the proposed scheme during construction, and therefore future baseline results for 2021 are shown only.

Table 8-341: A47/B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road roundabout modelling results

08:00-09:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (All PCU)	Flow/capacity RFC	Max queue	Flow (All PCU)	Flow/capacity RFC	Max queue
A47 Heartlands Parkway (N)	1146	0.55	1	1340	0.67	2
B4114 Saltley Viaduct (E)	777	0.80	4	909	1.04	37
Mainstream Way (S)	87	0.17	0	102	0.25	0
B4114 Saltley Road (W)	948	0.41	1	1109	0.49	1
Total	2958		7	3460		41
17:00-18:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A47 Heartlands Parkway (N)	542	0.27	0	633	0.33	1
B4114 Saltley Viaduct (E)	786	0.58	1	918	0.70	2
Mainstream Way (S)	154	0.17	0	180	0.22	0
B4114 Saltley Road (W)	1570	0.65	2	1833	0.77	3
Total	3052		4	3564		7

8.6.g9 The results show that the B4114 Saltley Viaduct (E) arm of the A47/B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road roundabout junction is forecast to operate above the optimum capacity threshold (0.85 RFC) in the AM (08:00-09:00) peak in 2021. There is likely to be a maximum queue of 38 vehicles on this arm.



## **Local road network - junctions**

### *City centre*

- 8.6.100 Committed changes to the local road network are included in the list set out in Table above. The key change in the Curzon Street station area will be the upgrade of the Cardigan Street/Jennens Road junction to a signalised junction for all movements. This, coupled with the development of the Birmingham City University's city centre campus, will mean an enhanced role in the local road network for Cardigan Street, which is reflected by the BCCM model results.
- 8.6.101 The following local road network junctions have been identified as requiring assessment due to their proximity to the Proposed Scheme:
- Moor Street Queensway/James Watt Queensway (signalised junction);
  - Moor Street Queensway/Masshouse lane (signalised junction);
  - Moor Street/Park Street (signalised junction);
  - Curzon Street/Cardigan Street (three arm priority junction); and
  - New Canal Street/Fazeley Street (signalised junction).
- 8.6.102 The signalised junctions have been modelled using Linsig v3, whilst the Cardigan Street/Curzon Street priority junction has been modelled using PICADY 8. The results for the 2021, 2026 and 2041 future baseline relative to 2012 are presented in the tables below.
- 8.6.103 Existing baseline flows are based on traffic surveys, with future baseline flows extracted from the BCCM model.

### *Moor Street Queensway*

- 8.6.104 In the future baseline, the configuration of the Moor Street Queensway Gyratory, which comprises the Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane junctions, will remain unaltered.
- 8.6.105 The following table summarises the results for Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane junctions in the 2021, 2026 and 2041 future baselines.

Table 8-342: Moor Street Queensway/James Watt Queensway junction results

08:00-09:00	2012 baseline			2021 future baseline			2026 future baseline			2041 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway												
B4114 James Watt Queensway	1109	85	21	1467	100	41	1487	101	45	1492	101	46
B4114 Jennens Road	435	70	9	316	51	6	318	51	6	328	53	6
B4100 Moor Street Queensway	938	87	13	1050	102	23	1058	102	23	1089	101	22
Moor Street Queensway/Masshouse Lane												
Priory Street Queensway	187	36	3	184	44	3	184	44	3	180	44	3
Masshouse Lane	394	33	3	336	41	4	335	37	3	334	39	4
B4100 Moor Street Queensway (S)	782	45	10	926	52	12	934	55	13	962	54	13
Total	3845		59	4279		89	4316		92	4385		93

17:00-18:00	2012 baseline			2021 future baseline			2026 future baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway												
B4114 James Watt Queensway	1055	89	22	854	82	17	854	82	17	846	72	15
B4114 Jennens Road	559	82	12	671	83	14	675	77	13	678	72	13
B4100 Moor Street Queensway	1070	87	13	1194	79	12	1198	83	13	1201	75	13
Moor Street Queensway/Masshouse Lane												
Priory Street Queensway	224	42	4	176	44	3	176	44	3	171	44	3
Masshouse Lane	392	39	3	498	61	5	497	61	5	482	64	5
B4100 Moor Street Queensway (S)	899	51	12	502	60	13	906	60	13	923	59	13
Total	4199		66	3895		64	4306		64	4301		61

- 8.6.106 The junction is forecast to operate over the recommended operational thresholds in 2021, 2026 and 2041 AM (08:00-09:00) peak, with the highest level of queuing forecast on James Watt Queensway at 46 PCU in the 2041 AM (08:00-09:00) peak.

*Moor Street/Park Street*

- 8.6.107 In the future baseline, the Moor Street/Park Street junction arrangement will remain unaltered.
- 8.6.108 The following table summarises the results for Moor Street/Park Street junctions in the 2021, 2026 and 2041 future baselines.
- 8.6.109 The results indicate that the Moor Street/Park Street junction is predicted to operate within capacity in 2021, 2026 and 2041. Queuing levels are generally highest on the Park Street arms, with a maximum predicted queue of 23 PCU on Park Street (N) in the 2041 PM (17:00-18:00) peak.

Table 8-343: Moor Street/Park Street – junction modelling results

08:00-09:00	2012 baseline			2021 future baseline			2026 future baseline			2041 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Park Street (N)	708	34	15	678	32	13	709	33	14	820	38	17
Car Park	3	2	0	1	1	0	1	1	0	1	1	0
Park Street (S)	990	47	16	1156	47	19	1162	47	19	1205	49	20
Moor Street	222	42	7	190	41	6	191	41	7	191	44	7
Total	1923		38	2025		38	2063		40	2217		44
17:00-18:00	2012 baseline			2021 future baseline			2026 future baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Park Street (N)	848	48	20	843	47	20	874	49	21	925	52	23
Car Park	106	46	4	17	12	1	14	10	1	14	10	1
Park Street (S)	931	49	16	1080	44	17	1093	45	17	1158	47	19
Moor Street	261	49	9	377	48	12	385	49	12	408	52	13
Total	2146		48	2317		50	2366		51	2505		55

*Cardigan Street/Curzon Street*

- 8.6.110 At the time of the 2012 surveys, Cardigan Street was closed to general traffic due to construction of Birmingham City University's city centre campus. The junction will remain closed on a temporary basis until the works to Cardigan Street are completed (expected to be 2014). Therefore, no modelling has been undertaken in the 2012 baseline, however results are provided for the 2021, 2026 and 2041 future baseline in the following table.

Table 8-344: Curzon Street/Cardigan Street junction modelling results

08:00-09:00	2021 future baseline			2026 future baseline			2041 future baseline		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
Curzon Street	243	0.00	0	321	0.00	0	460	0.00	0
Cardigan Street	59	0.15	0	99	0.26	0	226	0.64	2
New Canal Street	404	0.00	0	393	0.00	0	361	0.00	0
Total	706		0	813		0	1047		2
17:00-18:00	2021 future baseline			2026 future baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
Curzon Street	457	0.00	0	491	0.00	0	544	0.00	0
Cardigan Street	3	0.01	0	3	0.01	0	7	0.02	0
New Canal Street	180	0.00	0	256	0.00	0	330	0.03	0
Total	640		0	750		0	881		0

- 8.6.111 The results show that Curzon Street/Cardigan Street is predicted to operate within capacity in 2021, 2026 and 2041, with a slight deterioration in performance in the AM (08:00-09:00) and PM (17:00-18:00) peaks on Cardigan Street in 2026 and 2041. A maximum queue of 2 PCU is forecast on Cardigan Street in the 2041 AM (08:00-09:00) peak.

*New Canal Street/Fazeley Street*

- 8.6.112 In the future baseline the configuration of the New Canal Street/Fazeley Street junction is expected to remain unaltered.
- 8.6.113 The following table summarises the results for the 2021, 2026 and 2041 future baseline at the New Canal Street/Fazeley Street junction.

Table 8-345: New Canal Street/Fazeley Street junction modelling results

08:00-09:00	2012 baseline			2021 future baseline			2026 future baseline			2041 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
New Canal Street (N)	237	27	4	452	58	9	497	62	10	610	65	12
Fazeley Street (E)	115	22	3	574	30	3	146	36	3	142	43	4
New Canal Street (S)	108	12	2	246	29	4	332	37	6	529	50	9
Fazeley Street (W)	215	27	4	514	56	10	536	62	11	457	65	10
Total	675		11	1786		26	1511		30	1738		34
17:00-18:00	2012 baseline			2021 future baseline			2026 future baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
New Canal Street (N)	219	28	4	229	25	3	313	27	4	428	38	5
Fazeley Street (E)	249	36	5	204	26	4	213	40	5	268	50	6
New Canal Street (S)	293	37	5	425	44	7	678	58	11	608	50	9
Fazeley Street (W)	315	35	5	289	45	6	242	58	6	139	41	3
Total	1076		19	1147		20	1446		25	1443		24

- 8.6.114 The results show that the junction is predicted to operate within capacity in 2021, 2026 and 2041, with queuing levels generally balanced across all arms. The greatest queues are expected on the New Canal Street (north) arm at 12 PCU in the 2041 AM (08:00-09:00) peak.

*Washwood Heath*

- 8.6.115 As part of the traffic assessment work, the following local road network junctions in the Washwood Heath area have also been recognised as requiring assessment in 2021 with the construction of the Proposed Scheme:
- Duddeston Mill Road/Melvina Road (three arm priority junction);
  - Washwood Heath Road/Alum Rock Road/Adderley Road/B4114 High Street (four arm roundabout);
  - Aston Church Road/Washwood Heath Road/Wight Road (four arm signalised crossroads); and
  - Adderley Road/Duddeston Mill Road (four arm signalised crossroads).

- 8.6.116 To consider the future baseline performances of these junctions, assessments have been completed, using ARCADY 7, PICADY 8 or LINSIG v3. Existing baseline flows are based on existing surveys, with traffic growth applied for the future baseline as described earlier in this report.

- 8.6.117 The results for the 2021 future baseline relative to 2012 are presented in the tables below.

*Duddeston Mill Road/Melvina Road*

- 8.6.118 The following table summarises the results for the 2021 AM (08:00-09:00) and PM (17:00-18:00) peak future baseline at the Duddeston Mill Road/Melvina Road. No changes are committed for the junction between the baseline and 2021 future baseline scenario.

Table 8-346: Duddeston Mill Road/Melvina Road Priority junction modelling results

08:00-09:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (All PCU)	Flow/ capacity %	Max queue	Flow (All PCU)	Flow/ capacity %	Max queue
Duddeston Mill Road (W)	243	0.00	0	279	0.00	0
Melvina Road (N)	563	0.94	12	578	0.12	42
Duddeston Mill Road (E)	645	1.02	22	690	1.21	75
Total	1451		34	1547		116



17:00-18:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity %	Max queue	Flow (all PCU)	Flow/ capacity %	Max queue
Duddeston Mill Road (W)	99	0.00	0	116	0.00	0
Melvina Road (N)	341	0.62	1	378	0.82	7
Duddeston Mill Road (E)	878	1.28	128	978	1.51	262
Total	1318		129	1472		269

8.6.119 The results show that both Melvina Road (north) and Duddeston Mill Road (east) arms are likely to exceed the optimum capacity threshold (0.85 RFC) in 2021. Queues of 262 PCU are predicted on the Duddeston Mill Road (east) arm during the 2021 PM (17:00-18:00) peak, associated with right turning traffic.

8.6.120 However, it should be noted that the traffic surveys undertaken at this junction, which have then been used to inform the junction assessment, are not consistent with recently observed traffic patterns. More recent observed movements show there would be less impact on the capacity of the junction, in particular a much smaller proportion of vehicles on the Duddeston Mill Road (E) arm were observed to turn right (into Melvina Road) than was recorded at the time of the survey. The junction assessment shows that the unreasonably large proportion of vehicles turning right to Melvina Road causes the long queues on Duddeston Mill Road (E). The junction currently operates substantially better than the results presented above suggest.

#### *Aston Church Road/Washwood Heath Road/Wright Road*

8.6.121 The following table summarises the results for the 2021 AM (08:00-0900) and PM (17:00-18:00) peak future baseline at the Aston Church Road/Washwood Heath Road junction. No changes are committed for the junction between the baseline and 2021 future baseline scenario.

Table 8-347: Aston Church Road/Washwood Heath Road junction modelling results

08:00-09:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (All PCU)	Flow/ capacity % DOS	Max queue	Flow (All PCU)	Flow/ capacity % DOS	Max queue
Aston Church Rd	291	76	7	338	82	11
Washwood Heath Rd (E)	821	75	10	960	82	18
Wright Rd	102	35	2	123	56	4
Washwood Heath Rd (W)	402	46	5	469	45	8
Total	1616		23	1890		40

17:00-18:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Aston Church Rd	372	76	7	435	92	18
Washwood Heath Rd (E)	603	75	8	771	92	15
Wright Rd	115	37	2	135	70	4
Washwood Heath Rd (W)	492	66	10	633	68	15
Total	1582		27	1974		52

- 8.6.122 The results show that the Aston Church Road and Washwood Heath Road (E) arms are likely to exceed the optimum capacity threshold (0.85 RFC) in the 2021 PM (17:00-18:00) peak. A maximum queue of 18 PCU is expected on the Aston Church Road arm during the 2021 PM (17:00-18:00) peak.

*Adderley Road/Duddeston Mill Road*

- 8.6.123 The following table summarises the results for the 2021 AM (08:00-09:00) and PM (17:00-18:00) peak future baseline at the Adderley Road/Duddeston Mill Road junction. No changes are committed for the junction between the baseline and 2021 future baseline scenario.

Table 8-348: Adderley Road/Duddeston Mill Road junction modelling results

08:00-09:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (All PCU)	Flow/ capacity % DOS	Max queue	Flow (All PCU)	Flow/ capacity % DOS	Max queue
Duddeston Mill Road	349	80	7	409	94	12
Adderley Road (N)	400	78	8	469	95	14
Ash Road	308	76	6	360	89	9
Adderley Road (S)	301	62	5	353	72	7
Total	1358		27	1591		42

17:00-18:00	2012 baseline			2021 future baseline		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Duddeston Mill Road	380	71	7	443	88	10
Adderley Road (N)	312	75	6	363	88	9
Ash Road	304	76	6	356	83	8
Adderley Road (S)	249	59	4	291	69	6
Total	1245		24	1453		33

- 8.6.124 The results show that the Duddeston Mill Road and Adderley Road (N) arms are likely to exceed the optimum capacity threshold (RFC of 0.85) in the 2021 AM (08:00-09:00) peak. A maximum queue of 14 PCU is expected on the Adderley Road (N) arm during the 2021 AM (08:00-09:00) peak.

### *Accidents and safety*

- 8.6.125 A full network safety analysis has been undertaken for 2012 in the baseline assessment. No safety problems have been identified for the future baseline network operation as a result of changes to the highway network or travel demands. The proposed future baseline schemes on the A4540 are likely to result in an improvement in road safety. However for the purpose of this report, the future baseline conditions for accidents and safety have been assumed to be the same as for the baseline assessment.

### *Parking*

#### **City centre**

- 8.6.126 The future baseline for the Curzon Street area includes two major developments located on Curzon Street (the Curzon Park and East City Park Gate schemes). These developments will result in the loss of the existing Curzon Street surface level car park, whilst generating their own parking demand.
- 8.6.127 The detail of these developments is not currently known, but it is envisaged that some parking would be provided, to accommodate any additional parking demands that are associated with these developments and to offset the loss of the Curzon Street car park.
- 8.6.128 The proposed Martineau Galleries mixed-use development will include approximately 2,000 car park spaces, accessed via Moor Street Queensway and Albert Street. This will lead to a net increase of 840 spaces in the area, where the existing Albert Street Multi Storey Car Park (1160 spaces) will be demolished to accommodate the Martineau Galleries scheme. It is assumed that the car parking facilities associated with the development will be available for the general public, not just users of the Martineau Galleries development.

## Washwood Heath

- 8.6.129 There are no committed changes to car parks or parking restrictions in the Washwood Heath area, and therefore parking facilities and parking restrictions in the future baseline assessment are assumed to be the same as in the baseline assessment.

### *Rail*

- 8.6.130 Although Birmingham New Street Station is currently being redeveloped, as part of the 'Birmingham Gateway' scheme, the scheme will not result in an increase in rail capacity at New Street Station. It has been assumed that there will be no changes to the strategic rail network in the Washwood Heath to Curzon Street area for the future baseline. Further information regarding the redevelopment of Birmingham New Street is provided in the 'Public Transport Interchanges' section below.

## Supply assumptions

- 8.6.131 The Midland Metro provides a key light rail link between Birmingham Snow Hill and Wolverhampton. Works are currently on-going to extend the line to Birmingham New Street station by 2015. The extension will provide a fast link from New Street Station, past Bull Street (for retail trips) to the business district at Snow Hill, the Jewellery Quarter and be within walking distance of the Proposed Scheme station at Curzon Street. This extension will be accompanied by an increase in service frequency.
- 8.6.132 In addition to the above, Centro have aspirations for a number of local rail schemes within the West Midlands. The Camp Hill Chords scheme is particularly relevant to the Washwood Heath to Curzon Street area.
- 8.6.133 The Camp Hill Chords scheme will provide two new lines into Moor Street Station. These are:
- From Kings Norton, Kings Heath, Moseley; and
  - From Tamworth, Kingsbury, Castle Vale and Fort Parkway.
- 8.6.134 These proposed lines would increase the range of services from Moor Street Station and potentially release some capacity at Birmingham New Street Station.
- 8.6.135 Centro also have aspirations to extend the Midland Metro network, beyond the on-going extension of the scheme from Snow Hill Station to New Street Station. The future extension would take the line from New Street Station to Centenary Square, in the city centre, via Paradise Circus. Further proposals are also set out in the Local Transport Plan 3, to extend the line along the A45 corridor to Birmingham Airport, which would pass through Digbeth and near to Moor Street Queensway (Centro, 2011), whilst the Eastside Masterplan (BCC, 2011) also references the potential to further extend the Metro to serve the Proposed Scheme and the Eastside.

- 8.6.136 Centro are currently bidding for funding for all of the above schemes (except the on-going extension to New Street station which is a committed scheme), and therefore it has been assumed that there will be no changes to the local rail network (over and above the committed scheme) in the Washwood Heath to Curzon Street area in the future baseline.

### Demand for services

- 8.6.137 The figures below show the future baseline rail demand on the rail network in the West Midlands in 2026 and 2041 (AM peak period). These results show that in 2026 the busiest lines (with over 3,500 passengers per hour) are the main lines from Coventry and Wolverhampton into Birmingham City Centre. The sections of the rail corridors to Solihull, Bromsgrove and Sutton Coldfield closest to the city centre also show high levels of demand.
- 8.6.138 The future baseline forecast for 2041 show a similar pattern as those forecast for 2026, with similar locations of high demand. However, the highest levels of demand (over 3500 passengers/hour) are forecast to occur further away from the Birmingham city centre, indicating increased levels of demand in 2041.

Figure 8-21: Future baseline 2026 AM (08:00-09:00) peak forecast rail demand

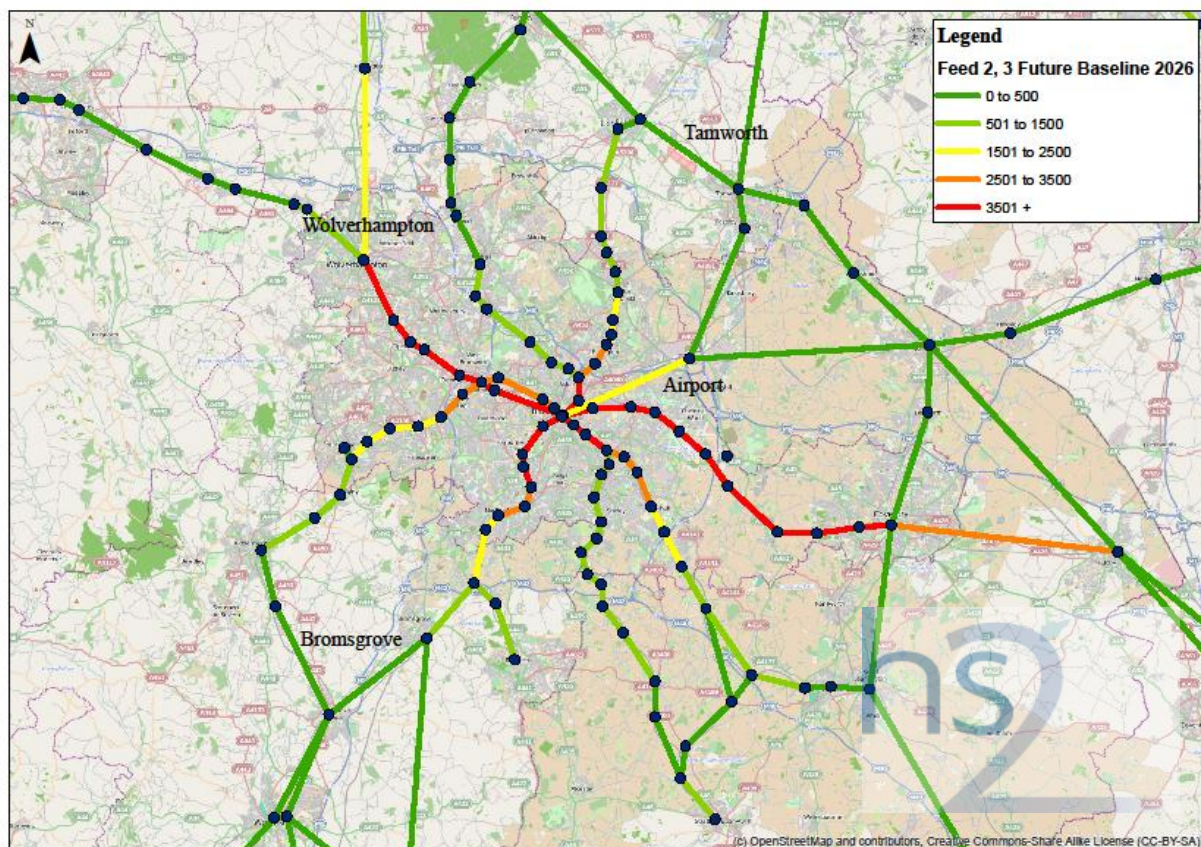
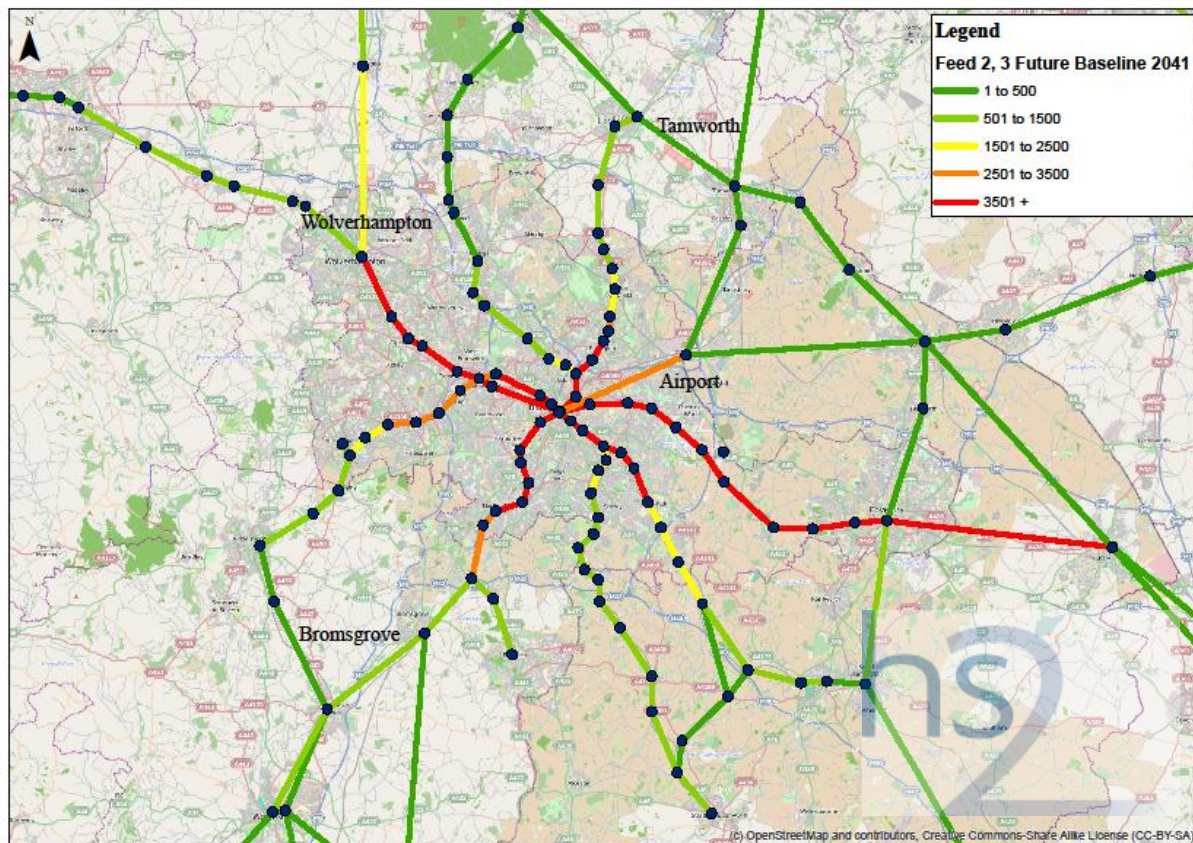




Figure 8-22: Future baseline 2041 AM (08:00-09:00) peak forecast rail demand



### *Local bus and coach services*

#### **Supply assumptions**

- 8.6.139 The West Midlands Local Transport Plan outlines the future aspirations for bus rapid transit from Birmingham City Centre to Birmingham Airport. This rapid transit scheme will serve BCC's 'Big City Plan' proposed major growth, development and regeneration sites in the City Centre, Eastside, Meadway and Bordesley Park; Birmingham Business Park and the NEC; and Birmingham Airport. Through providing connectivity between Birmingham City Centre and Birmingham Airport, the bus rapid transit scheme would also provide high levels of accessibility along the eastern corridor of Birmingham.
- 8.6.140 The 'Birmingham Sprint' scheme, a new bus rapid transit system for Birmingham, will provide a fast, dependable 'turn up and go' service, with new purpose built vehicles and passenger facilities. Routes will be aligned to major roads and park & ride schemes, to reduce the demand for car journeys into the city centre. The scheme is part of BCC's £800 million aspirational 'Vision for Movement' strategy in the city and could start in 2015.

#### **Demand for services**

- 8.6.141 Future baseline bus patronage in Birmingham city centre has been forecast based on the Centro bus cordon count survey undertaken in November 2011. The figure below shows the location of the cordon count surveys.

8.6.142 Growth factors from the DfT's Trip End Model Program (TEMPO) were applied to the 2011 data. However the TEMPO factors showed a slight reduction in forecast bus patronage in 2026 and 2041 compared with 2011, so no background growth was applied in developing 2026 and 2041 forecasts. Forecast bus patronage for 2026 and 2041 are shown in the table below. Also shown in the table below are the number of services on each corridor, seated capacity, % utilisation and number of available seats.

Figure 8-23: Birmingham cordon surveys, Centro 2011



Table 8-349: AM (08:00-09:00) peak Birmingham City centre bus cordon counts, 2012, outbound

Corridor	AM Peak (08:00-09:00) Outbound Services				
	Number of services	Passenger Capacity	Overall Utilisation %	Existing Passengers	Available Seated Capacity
A34 (South)	19	1257	17%	208	1048
A34 High Street (North)	20	1349	17%	224	1125
A38M (North)	21	1306	16%	205	1101
A41 (East)	34	2074	23%	470	1604
A45 (East)	28	1585	19%	298	1287
A456 (West)	25	1245	18%	226	1019
A457 (East)	18	1199	19%	222	976
A47 (North)	33	1782	40%	713	1069
A441/A38 (South)	12	888	34%	300	588

Table 8-350: AM (08:00-09:00) peak Birmingham City centre bus cordon counts, 2012, inbound

AM Peak (08:00-09:00) Inbound Services					
Corridor	Number of services	Passenger Capacity	Overall Utilisation %	Existing Passengers	Available Capacity
A34	18	1192	55%	654	538
A34 High Street	20	1358	55%	745	613
A38M	25	1497	41%	609	888
A41	32	1954	45%	882	1072
A45	29	1657	48%	789	867
A456	25	1284	46%	588	695
A457	17	1117	47%	524	593
A47	32	1707	101%	1726	-20
A441/A38	13	962	48%	466	496

8.6.143 The results in the table above show that on average bus occupancy will be 50% inbound and 20% outbound during the AM (08:00-09:00) peak. The busiest corridor is B4114 Jennens Road, which has over 100% inbound seated occupancy in the future baseline. Standing space would still be available on this corridor and could be utilised by any additional passengers.

8.6.144 The capacity of buses on the network ranges from 28 to 78 people per bus, with an average of 56.

8.6.145 Therefore, the majority of routes and services are forecast to have spare capacity in 2026 and 2041.

### *Public transport interchanges*

#### **Birmingham New Street**

8.6.146 Birmingham New Street station is currently undergoing a major redevelopment planned for completion by 2015. The scheme will result in a much improved environment for passengers and improved access between the station, the surrounding areas of the city centre and vehicular access.

8.6.147 The redevelopment works will provide:

- a concourse with three and half times more space for passengers;
- more accessible and clearer platforms, reached by new escalators and new public lifts;
- a new station exterior;
- better transport links to and through the station for pedestrians, with eight



entrances; and

- a major stimulus for the physical regeneration of the areas surrounding the station.

8.6.148 Included within the proposals are improved pedestrian links to and through the station, with new entrances and a new public square improving connections across the city. This includes new entrances and walkways at the south (Hill Street), north (Stephenson Street) and east of the station. Improvements to the connection between Moor Street and Birmingham New Street have also taken place, with a new walkway forming part of the between Moor Street station, Smallbrook Queensway and the new concourse via Stephenson Street, which opened in April 2013.

8.6.149 As part of the development proposals, the taxi pick up and drop off locations will also be amended. Previously, taxi access to the station was provided via the junction on Hill Street, with taxis queuing on Queens Drive (33 spaces) before picking up passengers from the station forecourt and exiting via the junction with Smallbrook Queensway. Following the completion of construction at the station, there will be separate “taxi pick up” (Smallbrook Queensway) and “drop off” (station forecourt) areas. The taxi pick up area will have a 32 space capacity for waiting taxis, whilst the pick-up area will be a free-flow of both taxis and general passenger drop offs. Completion of the scheme will also include cycle parking for up to 150 bicycles.

### **Moor Street Queensway**

8.6.150 An assessment of the future baseline pedestrian movements on Moor Street Queensway has been undertaken, to determine pedestrian densities for each roadside footway and each crossing area. The densities have then been compared to the Fruin Level of Service banding to provide a level of service between A and E, where LoS A represents free-flowing conditions.

8.6.151 Pedestrian survey data has been used to inform the 2026 and 2041 assessments of pedestrians using Moor Street Queensway. Pedestrian growth between the baseline and future baseline assessments has been based on population forecasts. The figures below show the forecast future baseline peak hour pedestrian flows on each section of Moor Street Queensway and at each crossing on Moor Street Queensway.

Figure 8-24: Forecast pedestrian flows on Moor Street Queensway - AM (08:00-09:00) peak 2026

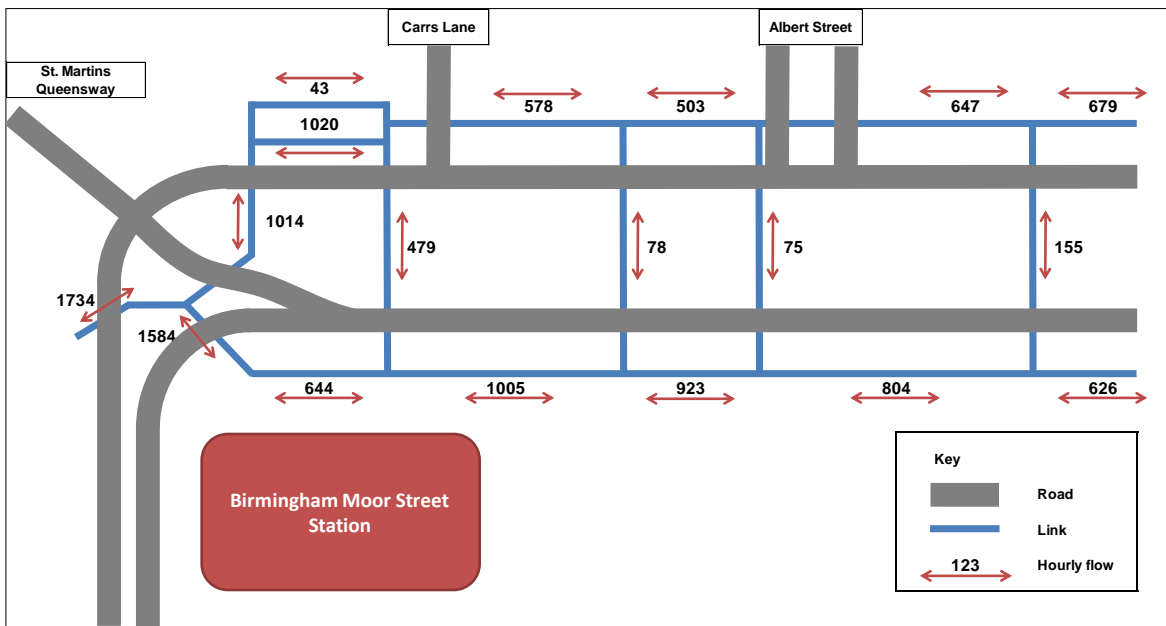


Figure 8-25: Forecast pedestrian flows on Moor Street Queensway - PM (17:00-18:00) peak 2026

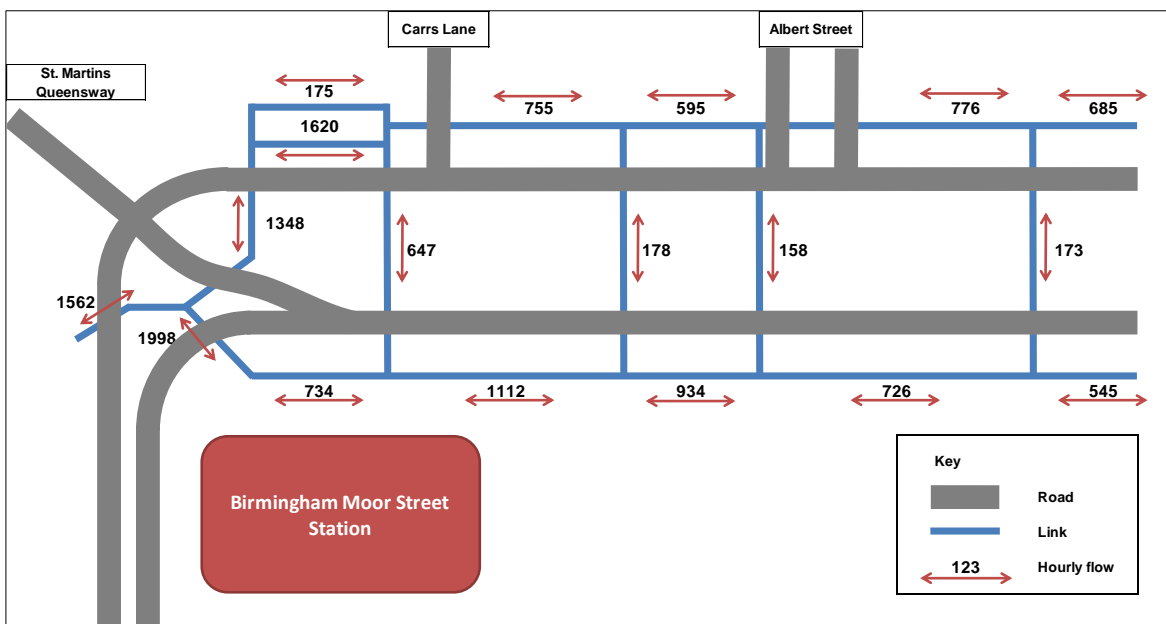


Figure 8-26: Forecast pedestrian flows on Moor Street Queensway - AM (08:00-09:00) peak 2041

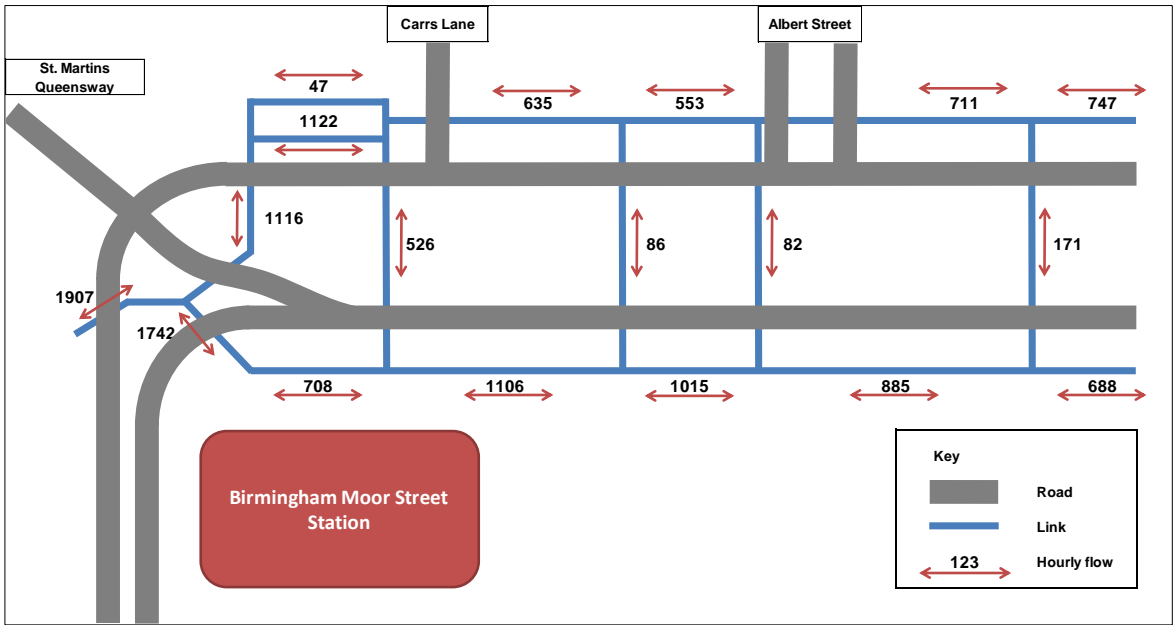
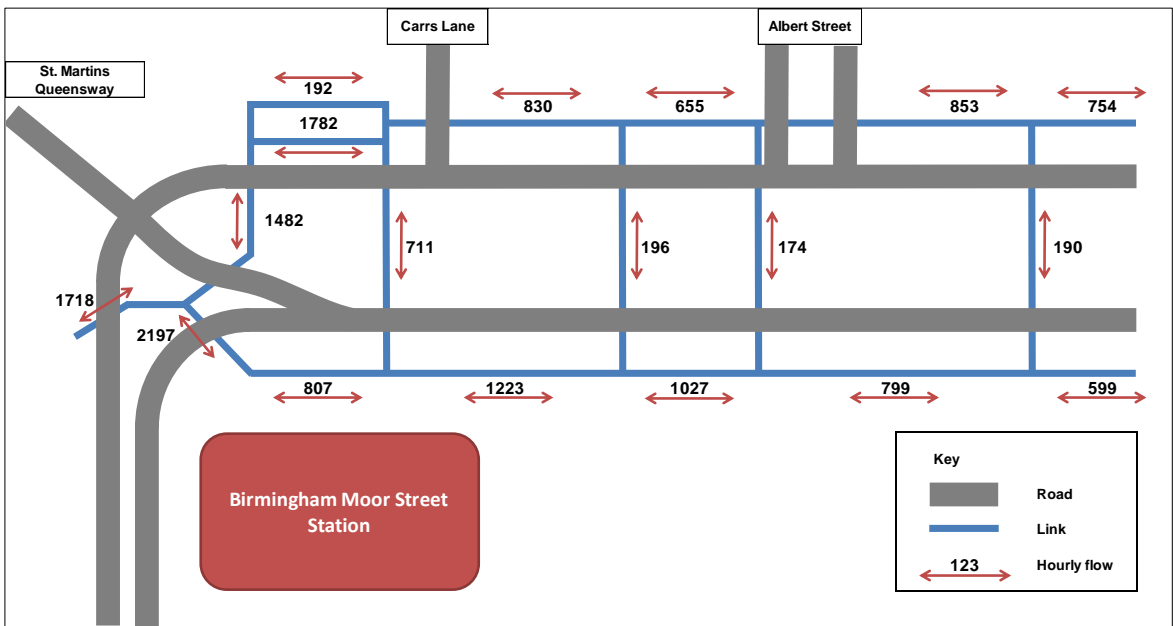
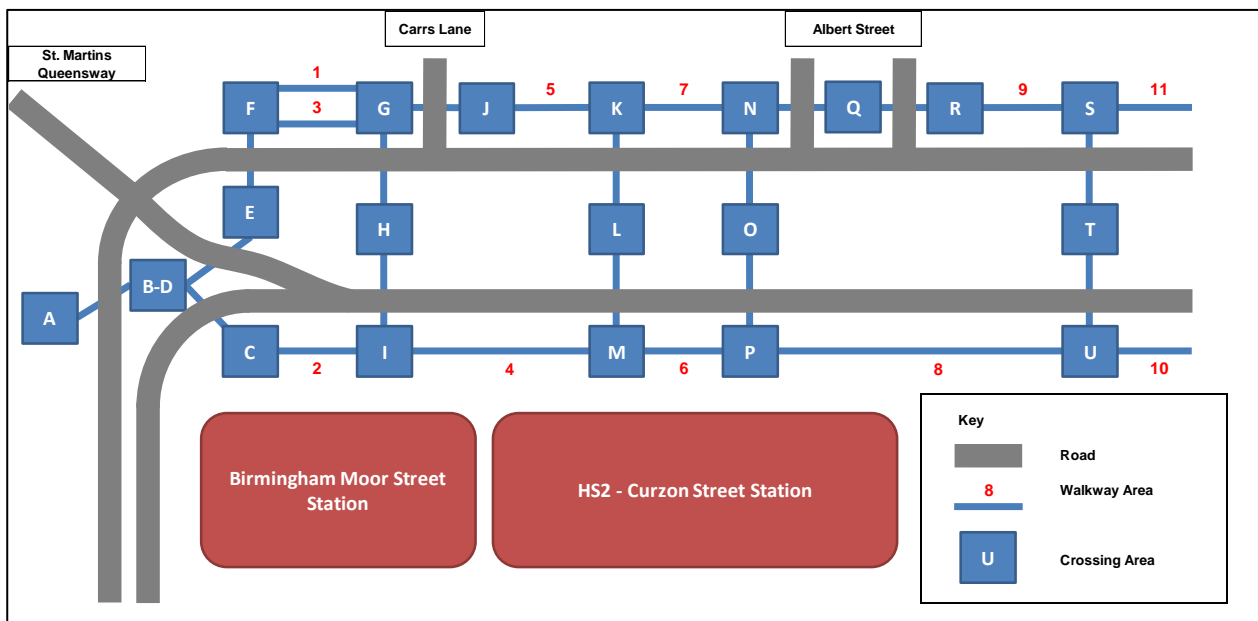


Figure 8-27: Forecast pedestrian flows on Moor Street Queensway - PM (17:00-18:00) peak 2041



8.6.152 The figure below illustrates the area included in the pedestrian assessments, and provides references for the crossing waiting areas and pedestrian walkway areas assessed.

Figure 8-28: Pedestrian assessment study area



8.6.153 The following tables show the results of the 2026 and 2041 future baseline pedestrian assessments for Moor Street Queensway.

Table 8-351: 2026 Future baseline - Moor Street Queensway pedestrian assessment

Areas	2026 future baseline					
	AM peak (08:00-09:00)			PM peak (17:00-18:00)		
	Max ped per/min	Density (ped/m2)	Level of service	Max ped per/min	Density (ped/m2)	Level of service
1	1	0.01	A	5	0.03	A
2	14	0.04	A	14	0.04	A
3	32	0.11	A	50	0.17	A
4	23	0.14	A	20	0.12	A
5	6	0.05	A	7	0.06	A
6	30	0.13	A	27	0.12	A
7	19	0.06	A	19	0.06	A
8	29	0.10	A	23	0.08	A
9	16	0.13	A	14	0.12	A
10	13	0.07	A	13	0.07	A
11	14	0.09	A	11	0.07	A
A	5	0.28	A	5	0.20	A
B	20	0.53	A	17	0.45	A
B+D	31	0.27	A	36	0.32	A
C	30	0.68	A	25	0.56	A

Areas	2026 future baseline					
	AM peak (08:00-09:00)			PM peak (17:00-18:00)		
	Max ped per/min	Density (ped/m2)	Level of service	Max ped per/min	Density (ped/m2)	Level of service
D	11	0.15	A	19	0.25	A
E	19	0.34	A	18	0.33	A
F	5	0.10	A	6	0.16	A
G	11	0.12	A	15	0.16	A
H	12	0.08	A	15	0.11	A
I	5	0.09	A	8	0.14	A
J	3	0.05	A	3	0.06	A
K	3	0.07	A	4	0.10	A
L	2	0.03	A	5	0.07	A
M	5	0.08	A	7	0.11	A
N	4	0.04	A	5	0.05	A
O	2	0.05	A	5	0.11	A
P	5	0.10	A	5	0.10	A
Q	14	0.41	A	12	0.34	A
R	4	0.06	A	4	0.06	A
S	4	0.06	A	4	0.06	A
T	4	0.10	A	6	0.15	A
U	4	0.08	A	4	0.08	A

Table 8-352: 2041 future baseline - Moor Street Queensway pedestrian assessment

Areas	2041 future baseline					
	AM peak (08:00-09:00)			PM peak (08:00-09:00)		
	Max ped per/min	Density (ped/m2)	Level of service	Max ped per/min	Density (ped/m2)	Level of service
1	1	0.01	A	5	0.03	A
2	16	0.04	A	16	0.04	A
3	35	0.12	A	55	0.19	A
4	25	0.15	A	22	0.13	A
5	6	0.05	A	8	0.06	A
6	33	0.15	A	30	0.14	A
7	21	0.06	A	21	0.07	A

Areas	2041 future baseline					
	AM peak (08:00-09:00)			PM peak (08:00-09:00)		
	Max ped per/min	Density (ped/m <sup>2</sup> )	Level of service	Max ped per/min	Density (ped/m <sup>2</sup> )	Level of service
8	31	0.11	A	26	0.09	A
9	18	0.14	A	16	0.13	A
10	15	0.08	A	15	0.08	A
11	16	0.10	A	13	0.08	A
A	5	0.38	B	6	0.24	A
B	22	0.58	A	18	0.50	A
B+D	34	0.30	A	39	0.35	A
C	33	0.75	A	27	0.62	A
D	13	0.16	A	21	0.28	A
E	21	0.38	A	20	0.36	A
F	6	0.11	A	7	0.19	A
G	12	0.14	A	16	0.19	A
H	13	0.09	A	16	0.12	A
I	5	0.10	A	8	0.15	A
J	3	0.06	A	4	0.07	A
K	4	0.07	A	5	0.11	A
L	2	0.03	A	5	0.07	A
M	6	0.09	A	7	0.12	A
N	4	0.04	A	5	0.05	A
O	2	0.06	A	5	0.12	A
P	5	0.11	A	5	0.11	A
Q	16	0.45	A	13	0.38	A
R	5	0.06	A	5	0.07	A
S	4	0.06	A	4	0.06	A
T	4	0.11	A	6	0.16	A
U	4	0.09	A	4	0.09	A

- 8.6.154 The tables above show that all the crossing areas and footway sections would operate with a Level of Service A in 2026 and in 2041, with the exception of crossing area 'A' (the waiting area at the pedestrian crossing between the Bullring and Moor Street Station, on the Bullring side of Moor Street Queensway) in the 2041 AM (08:00-09:00) peak, which is predicted to have a Level of Service B. At waiting areas, LoS B represents an area where spaces are provided for standing and restricted circulation through the area without disturbing others. LoS B therefore represents areas which are operating within capacity.
- 8.6.155 Therefore, it is anticipated that, in the future baseline, all sections assessed will operate well within capacity and as a result pedestrians on Moor Street Queensway will be able to choose their normal walking speed and manoeuvre, with minimal conflicts.

### **Linkage from Moor Street Queensway to New Street Station**

- 8.6.156 In January 2013, Centro published the One Station Project study, which considered improvements to connectivity between New Street station and Moor Street station (and the Proposed Scheme) under the objective of developing a seamless 'one station' approach via the existing St. Martin's Queensway tunnel. The study proposed a scheme which would create two new arrival squares adjacent to each end of the tunnel, and improvements to the tunnel itself. The proposed scheme is not currently a committed scheme.

### *Pedestrians*

- 8.6.157 There are no committed proposals for specific improvements to the pedestrian environment and associated facilities; however as part of other future baseline schemes the pedestrian environment and associated facilities will also be improved.

### *Cyclists*

- 8.6.158 BCC and the Birmingham Health and Well Being Partnership are committed to encouraging more people in Birmingham to cycle more often. The 'Bike Birmingham: A Sustainable City's Cycling Strategy 2011 – 2015' sets out how they are aiming to achieve this.
- 8.6.159 In addition, the Government has recently announced that a total of £77 million will be divided between Birmingham, Bristol, Cambridge, Leeds, Manchester, Newcastle, Norwich and Oxford as part of the Cycle City Ambition Grant funding to make roads safe for cyclists. BCC will receive £17 million of this funding, between 2013 and 2015. The funding will be used to improve 95km of existing route and 115km of new routes within Birmingham. This is likely to include improvements to infrastructure (new fast cycle lanes, shared-use footways, improvements to Birmingham's canal towpaths), improved signage, parking and bicycle hire schemes.

### *Taxis*

- 8.6.160 There are no committed changes in arrangements or facilities in the Washwood Heath to Curzon Street area, over and above changes to taxi facilities at Birmingham New Street station. The future baseline taxi arrangements and facilities in the vicinity of the Proposed Scheme are assumed to be the same as those in the baseline.

### *Waterways and canals*

- 8.6.161 There are no committed changes to navigable waterways in the Washwood Heath to Curzon Street area.

### *Air transport*

- 8.6.162 Birmingham Airport is located to the east of Birmingham and is included in the Birmingham Interchange and Chelmsley Wood area section of this report.

### *Summary*

- 8.6.163 The table below presents a summary of transport issues identified in the future baseline.

Table 8-353: Future baseline; summary of issues

Mode	Issue		
	2021	2026	2041
Highway	Strategic network approaching capacity, including at Curzon Circle, Garrison Circus, A4040 Bromford Lane/Wolesley Drive.  Local network approaching capacity, including at B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road; Moor Street Queensway gyratory; B4100 Moor Street/B4114 Park Street; Duddeston Mill Road/Melvina Road; Aston Church Road/Washwood Heath Road; and B4145 Adderley Road/Duddeston Mill Road	Strategic network approaching capacity, including at Curzon Circle, Garrison Circus, A4040 Bromford Lane/Wolesley Drive.  Local network approaching capacity, including at B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road; Moor Street Queensway gyratory; B4100 Moor Street/B4114 Park Street; Duddeston Mill Road/Melvina Road; Aston Church Road/Washwood Heath Road; and B4145 Adderley Road/Duddeston Mill Road	Strategic network approaching capacity, including at Curzon Circle, Garrison Circus, A4040 Bromford Lane/Wolesley Drive.  Local network approaching capacity, including at B4114 Saltley Viaduct/Mainstream Way/B4114 Saltley Road; Moor Street Queensway gyratory; B4100 Moor Street/B4114 Park Street; Duddeston Mill Road/Melvina Road; Aston Church Road/Washwood Heath Road; and B4145 Adderley Road/Duddeston Mill Road
Public Transport	Overcrowding on Jennens Rd corridor	Overcrowding on Jennens Rd corridor	Overcrowding on Jennens Rd corridor
Pedestrian, Cyclists and Equestrians	No issue	No issue	No issue
Waterways	No issue	No issue	No issue
Parking	No issue	No issue	No issue
Air Transport	No issue	No issue	No issue



## Washwood Heath to Curzon Street Station (CFA26) Proposed Scheme construction description

- 8.6.164 This section provides an overview of the construction traffic and transport impacts for the section of the Proposed Scheme that passes through the Washwood Heath to Curzon Street area. This area includes construction of the western portal of the proposed Bromford Tunnel, the proposed Washwood Heath Depot, the line mainly on viaduct through the area, and the proposed Curzon Street station.
- 8.6.165 Traffic and transport impacts within the Washwood Heath to Curzon Street area will arise from a combination of the following:
- removal of excavated material (particularly associated with tunnel boring),
  - delivery of plant and construction materials;
  - worker activity;
  - road closures and diversions of general traffic and bus services;
  - PRow and footway closures and diversions for pedestrian and cyclists; and
  - disruptions to rail services through rail possessions.
- 8.6.166 The construction period for the whole route is programmed for 2017 to 2026. The base year for assessment of construction impacts has been chosen at 2021. The forecast peak construction activities have then been overlaid on 2021, with, as relevant, overlapping activities (in both area of importance and timing) considered in combination.

### Construction activities

- 8.6.167 The key locations for construction activities within the Washwood Heath to Curzon Street area are as follows:
- Bromford Tunnel;
  - Washwood Heath Depot;
  - Stechford to Aston line Network Rail overbridge;
  - Aston Church Road overbridge;
  - River Rea overflow channel realignment;
  - Saltley Viaduct replacement;
  - Duddeston junction viaduct;
  - Freightliner viaduct;
  - Vauxhall viaduct;
  - Curzon Street approach viaduct; and

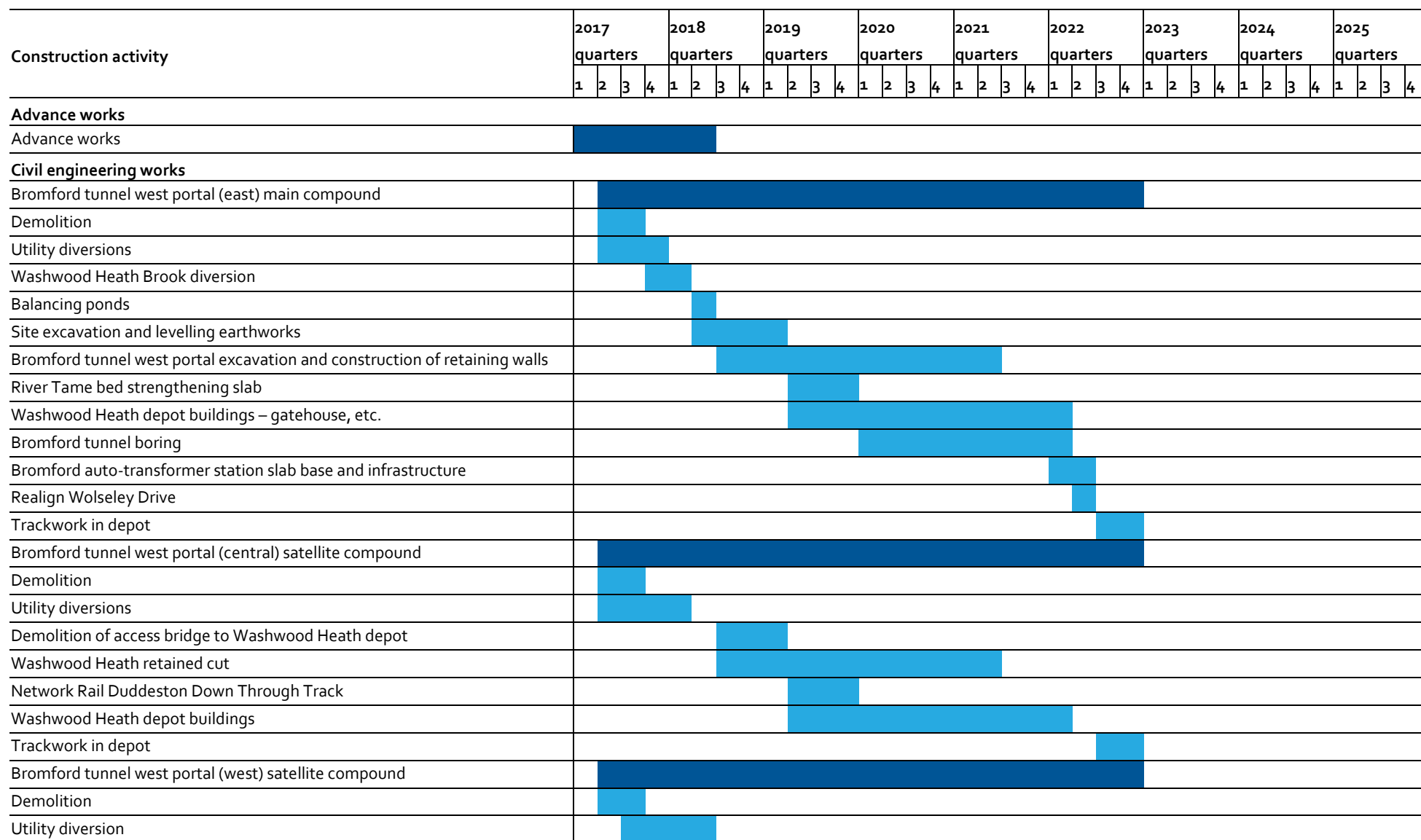
- Curzon Street station.

- 8.6.168 The main construction activities for the Washwood Heath to Curzon Street area will comprise demolition, earthworks, structures and rail infrastructure fit out, as well as associated diversions, temporary or permanent, for utilities, services, highways, footways and watercourses. A short summary of the four main activities are provided below:
- Demolition: it is anticipated that four structures and 63 buildings will require demolition as a result of the Proposed Scheme, which will require the removal of materials.
  - Earthworks: major earthworks, which would include the re-profiling of the proposed Washwood Heath Depot site, excavation of the Curzon Street station basement and the excavation of Bromford Tunnel at the western portal. Furthermore transport of excavated material offsite, and as part of the mass-haul strategy, will form a key movement within the CFA.
  - Structures: main construction works, in relation to structures, would comprise Bromford Tunnel, Washwood Heath Depot, and the Curzon Street station. Construction of two overbridges (Stechford and Aston railway line at Aston Church Road), three underbridges (Grand Union Canal, Saltley Viaduct and Duddeston junction) and a viaduct between Duddeston junction and the Curzon Street station approach will also be required. Sections of the Proposed Scheme will be delivered in excavated cuttings or raised on embankments. All activities would require the delivery of plant and materials.
  - Rail infrastructure fit out: track, overhead line and communications equipment and power supply works would be completed throughout the CFA.
- 8.6.169 The construction assessment considers the traffic and transport impacts in three peak months of construction activity, based on the proposed phasing of the works. The peak months have been identified as Months 22 (2018 Quarter 4), 27 (2019 Quarter 1) and 36 (2019 Quarter 4). In Month 22 there will be nine operational worksites, and in both Months 27 and 36 there will be ten worksites in operation. The construction assessment considers average construction traffic levels for the peak months and outside of these peaks activity is expected to be lower for much of the time. In considering the impacts of the Proposed Scheme, where these occur in particular months assessed this is identified. In general the impacts are greatest in Month 27. The assessment of these three peaks in activity has been used to ensure that all impacts are identified.
- 8.6.170 The assessment of the peak months also considers any substantial closures that are proposed, and in this CFA the substantial closures are at B4114 Saltley Viaduct (temporary closure) and B4100 Park Street (permanent closure).
- 8.6.171 Month 27 represents the peak month of activity when 10 of the 11 compounds will be operating, including when the Bromford tunnel west portal worksites will be at their busiest. The Bromford tunnel west portal worksites contribute approximately 90% of the total flow in this month.

*Compounds and construction sites*

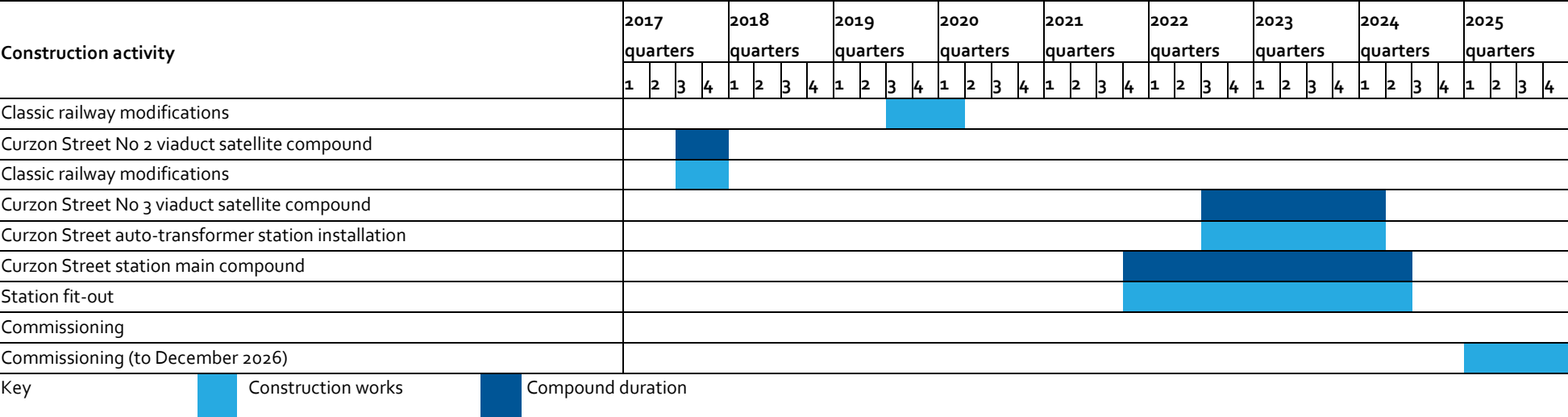
- 8.6.172 Details of the construction activity phasing are provided above and the main construction works and the time periods when each compound is operational are summarised below in the figure below.

Figure 8-29: Washwood Heath to Curzon Street station (CFA26) construction compound phasing



[illegible]

Construction activity	2017				2018				2019				2020				2021				2022				2023				2024				2025			
	quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters				quarters			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Curzon Street No.2 viaduct satellite compound																																				
Building demolition																																				
Utility diversions																																				
Curzon Street No.2 viaduct																																				
Curzon Street No.1 viaduct																																				
Balancing ponds																																				
Curzon Street No.3 viaduct satellite compound																																				
Utility diversions																																				
Building demolition																																				
Curzon Street No.3 viaduct																																				
A4540 Lawley Middleway highway works																																				
Balancing pond																																				
Curzon Street auto-transformer station base slab and infrastructure																																				
Curzon Street station main compound																																				
Building demolition																																				
Utility diversions																																				
Curzon Street station highway works																																				
Curzon Street station construction																																				
Railway installation works																																				
Railway systems installation																																				
Bromford tunnel west portal (railway installation) satellite compound																																				
Bromford auto-transformer station installation																																				
Portal building fit-out																																				
Bromford west satellite compound																																				
Classic railway modifications																																				
Tunnel fit out																																				
Washwood Heath rail bridge satellite compound																																				
Classic railway modifications																																				
Curzon Street No 1 viaduct satellite compound																																				



- 8.6.173 The Washwood Heath to Curzon Street area will hold two main construction site compounds, and 13 satellite construction compounds. The location of the construction compounds and construction vehicle routes is shown on CT-05-139b to CT-05-142, Volume 2, Map Book 26.
- 8.6.174 The two main construction compounds will be located at Wolseley Drive ((0440/01)) and at Curzon Street ((0440/11)). These will form the central locations for core project management (engineering, planning and construction delivery), commercial management and administrative staff. There will also be main welfare facilities for staff and site operatives, which will provide training and induction facilities, a canteen, washing and toilet facilities and clothes storage and drying room facilities.
- 8.6.175 The main construction compounds will also contain space for the storage of bulk materials (aggregates, structural steel, steel reinforcement etc.), an area for the fabrication of temporary works equipment and finished goods, fuel storage, plant and equipment storage and necessary operational parking.
- 8.6.176 In addition to the above, the existing concrete batching and precast concrete production facility within the Washwood Heath Depot site may be used to provide concrete supply to the construction works.
- 8.6.177 The remaining 13 sites comprise satellite compounds, which will be smaller in size than the main construction site compounds. These will provide facilities and parking for a limited number of staff at key construction or rail fit out locations, whilst providing local storage for plant and materials. Nine of the 13 satellite compounds will be in place during the main phase of construction, with the remaining four associated with the latter stages of construction relating to the rail fit out and implementation.
- 8.6.178 The following table summarises the anticipated average and peak workforce to be required at each construction compound.

Table 8-354: Assumed workforce at construction sites

Compound type	Location	Assumed daily workforce per site for duration with busy vehicle movements	
		Average	Peak
Main compound	Bromford tunnel west portal (east)	220	330
Satellite compound	Bromford tunnel west portal (central)	130	195
Satellite compound	Bromford tunnel west portal (west)	130	195
Satellite compound	Aston Church Road (west)	30	45



Compound type	Location	Assumed daily workforce per site for duration with busy vehicle movements	
		Average	Peak
Satellite compound	Aston Church Road overbridge (east)	20	30
Satellite compound	B4114 Saltley Viaduct (west)	20	30
Satellite compound	B4114 Saltley Viaduct (east)	30	60
Satellite compound	Curzon Street No. 1 viaduct	60	90
Satellite compound	Curzon Street No. 2 Viaduct	20	40
Satellite compound	Curzon Street No. 3 viaduct	50	100
Main compound	Curzon Street station	150	500

8.6.179 Typical trip generation for the construction site compounds in the Washwood Heath to Curzon Street area are shown in the table below. Details of the construction compounds, including the location and number of workers employed at each site, along with planned construction routes, are provided in the table below. The duration of when there will be busy transport activity at each site is also shown in table below. This represents the period when the construction traffic flows will be greater than 50% of the peak flows.

8.6.180 Also shown is the estimated number of daily vehicle trips during the peak month of activity, the lower end of the range shows the average number of trips during the busy months and the upper end the peak flows. The assessment scenario has assumed the peak month for the combination of activities, i.e. not necessarily the peak month for the combination of activity at each individual site.

Table 8-355: Typical vehicle trip generation for construction site compounds in this area

Compound type	Location	Access to/from compound	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
Main compound	Bromford tunnel west portal (east)	A4040 Bromford Lane, Wolsley Drive	Q2 2017	5-5	23	176 - 220	290 - 500
Satellite compound	Bromford tunnel west portal	A47 Heartlands Parkway, bridge over	Q2 2017	5-5	36	104 - 130	130 -160

Compound type	Location	Access to/from compound	Indicative start/set up date	Estimated duration of use (years)	Estimated duration with busy vehicle movements (months)	Average daily combined two-way vehicle trips during busy period and within peak month of activity	
						Cars/LGV	HGV
	(central)	railway					
Satellite compound	Bromford tunnel west portal (west)	Aston Church Road, access road to local businesses	Q2 2017	5.5	26	104 - 130	120 - 122
Satellite compound	Aston Church Road overbridge (west)	A47 Heartlands Parkway	Q2 2017	5	1	24 - 30	<10 - <10
Satellite compound	Aston Church Road overbridge (east)	Aston Church Road, Arley Road	Q2 2017	4.5	7	16 - 20	23 - 37
Satellite compound	B4114 Saltley Viaduct (west)	A47 Heartlands Parkway	Q1 2018	2	2	16 - 20	95 - 100
Satellite compound	B4114 Saltley Viaduct (east)	B4114 Saltley Viaduct, Pennine Way	Q2 2017	3	8	24 - 30	129 - 140
Satellite compound	Curzon Street No. 1 viaduct	Duddeston Mill Road	Q2 2017	5.5	20	48 - 60	18 - 25
Satellite compound	Curzon Street No. 2 viaduct	Erskine Street	Q2 2017	2.5	3	16 - 20	20 - 31
Satellite compound	Curzon Street No. 3 viaduct	Curzon Street	Q2 2017	3	3	40 - 50	80 - 102
Main compound	Curzon Street station	Curzon Street	Q2 2017	6	18	120 - 150	29 - 40

### *Construction lorry routes*

8.6.181 Most of the routes will be used on an occasional basis, for activities that cannot be accessed via the main gate. Regular movements to and from the sites will access and egress the highway network from the main gate, as set out in the table above, and will follow the routes described below. The assessment of construction impacts has assumed all vehicles will access the compounds via the main gates.

8.6.182 Access routes to the main compound sites will be via the strategic highway network although some access locations will be via local roads. The following lorry routes are currently proposed to access the main site compounds:

Bromford Tunnel West Portal (east) (0440/01):

- Wolseley Drive/A4040 Bromford Lane/A47 Fort Parkway/A452 Chester Road/M6 junction 5 to the east (also linking to M42 for south); and
- Wolseley Drive/A4040 Bromford Lane/A38/M6 junction 6 to the west (also linking to M5 for south).

Curzon Street Station (0440/11):

- Curzon Street/A4540/A38(M)/M6 junction 6 to the east (also linking to M42 for south);
- Curzon Street/A4540/A38(M)/M6 junction 6 to the west (also linking to M5 for south); and
- Curzon Street/A4540/A45.

8.6.183 Satellite construction site compounds will generally be more remote and be operational for shorter durations. They will be accessible via internal site access routes and A, B or minor unclassified roads. The type of materials being delivered, or removed from these compounds, means that only the following general routes are likely to be used during construction:

- A47, A452, M6 junction 5 (east) and M42 (south);
- A4540, A38(M), M6 junction 6 (east) and M42 (south) ;
- A4040, A38, M6 junction 6 (west);
- A4540, A38(M) and M5 junction 6 (west); and
- A47, A4540, A45.

### *Traffic management, road closures and diversions*

8.6.184 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing highways, as well as traffic management.

8.6.185 The following tables summarise the roads in the Washwood Heath to Curzon Street area that will experience temporary closures and diversions. The following table identifies the temporary highway diversions that may be required to facilitate the closures and restrictions. The construction of the Proposed Scheme has been carefully planned to minimise disruption to travellers through traffic management, temporary road closures or restrictions. Where temporary road closures are necessary, the general approach is to undertake closures for short discrete periods, to ensure that the impact on users is minimised.

Table 8-356: Temporary highway diversions

Name	Location	Diversion route	Approximate length of diversions	Duration
Heartlands Parkway (A47)	West of Aston Church Road	Diversion will be via A47 Saltley Road, B4132 Thimble Mill Lane/Lynton Road, A5127 Lichfield Road, B4137 Cuckoo Road.	3.4km	30 overnight closures, 6 weekend closures over 24 months
B4114 High Street (Saltey viaduct)	High Street to junction with A47	Diversion will be via Adderley Road, Duddeston Mill Road, Melvina Road.	1.45km	36 months, with full closure for 18 months.
Duddeston Mill Road	Adderley Road/Ash Road to Great Francis Street/Melvina Road	Diversion will be via Adderley Road, Saltley Viaduct, Saltley Road, Melvina Road.	1.4km	30 overnight closures and 6 weekend closures over 36 months.
Lawley Middleway	City Centre Viaduct	Diversion will be via Ashted Circus, B4114/B4100, Bordesley Circus.	3.5km	30 overnight closures and 6 weekend closures over 26 months.
Lawley Middleway	Curzon Circle	Diversion will be via Ashted Circus, B4114/B4100, Bordesley Circus.	3.5km	30 overnight closures and 6 weekend closures over 18 months.
Lawley Middleway	Garrison Circus	Diversion will be via Ashted Circus, B4114/B4100, Bordesley Circus.	3.5km	30 overnight closures and 6 weekend closures over 18 months.
Streets in vicinity of Curzon Street station	New Canal Street	Diversion will be via Lawley Middleway.	3.5 km	60 overnight closures and 12 weekend closures over a 60 month construction period.

8.6.186 The impact of these temporary closures and diversions is assessed below.

8.6.187 In addition to the above temporary closures, the construction of the Proposed Scheme will also require the permanent closure of a number of local roads. Most notably, B4114 Park Street will be closed permanently and this will occur early in the construction programme. The impact of this closure is therefore included as part of the construction assessment.

#### *PRoW closures and diversions*

8.6.188 The construction of the Proposed Scheme will require the temporary closure of and/or diversion of some existing footpaths and roadside footways, as well as the temporary closures of the Grand Union Canal and Digbeth Branch Canal towpaths.

8.6.189 The impact on footpaths (including roadside footways), cycleways and bridleway links along the route of the Proposed Scheme has been minimised, as far as possible, through the design process. The links that will be affected are summarised in the table below.

Table 8-357: Footpath, cycleway and bridleway closures and diversions

Name	Location	Approximate length of diversions	Duration	Reason for diversion and route
Aston Church Road	A47 Heartland Parkway roundabout to Arley Road	200m	24 months	Construction of new overbridges. Local diversions adjacent to bridge works.
Aston Church Road	A47 Heartland Parkway roundabout to Arley Road	2.2km	36 months 30 overnight and 6 weekend closures	Construction of new overbridge. Divert via Washwood Heath Road and Saltley Viaduct.
Grand Union Canal	Saltley Canal Underbridge	150m	49 months	Construction of Grand Union Canal underbridge. Temporary route adjacent to canal.
Heartlands Parkway	River Rea (West of Aston Church Road)	N/A	49 months	Construction of new River Rea overflow channel culvert. Local diversions adjacent to culvert works.
B4114 High Street (Saltley Viaduct)	High Street to junction with A47	1.5km	49 months	Construction of new Saltley carriageway viaduct and new Saltley canal underbridge. Divert via Mainstream Way, Duddeston Mill Road and Crawford Street.
Duddeston Mill Road	Adderley Road/Ash Road to Great Francis Street/Melvina Road	1.4km	55 months	Construction of new overbridge and the Proposed Scheme viaduct. Divert via Crawford Street, Heartlands Parkway and Mainstream Way.
St James Place	Between Viaduct Street and Vauxhall Road	640m	55 months	St James Place fenced off during construction
Lawford Close	Between Viaduct Street and Vauxhall Road	630m	55 months	Lawford Close fenced off during construction
Lawley Middleway	City Centre viaduct		55 Months	Construction of new viaduct. Divert via Viaduct Street, St James' Place and Vauxhall Road.
Various in the vicinity of Curzon Street station	South of Jennens Road, east of Moor Street Queensway and north of Bordesley Street	n/a	60 months	Construction of new Curzon Street station, potentially requiring footpath restrictions, 60 overnight closures, 12 weekend closures, over 60 month
Digbeth Branch Canal towpath	City Centre viaduct	850m	18 months	Construction of new viaduct. Divert via Curzon Street, New Canal Street and Fazeley Street.

8.6.190 The impact of the above closures and diversions is assessed below.

### **Washwood Heath to Curzon Street Station (CFA26) Proposed Scheme assessment of impacts**

#### *Key construction transport issues*

- 8.6.191 Construction of the Proposed Scheme in the Washwood Heath to Curzon Street area will have temporary impacts on a number of roads in the CFA, which will include increased traffic demand associated with plant and material movement and construction worker trips. Rail possessions will also take place during construction, predominantly as part of the rail fit out process, although, through appropriate planning, it is expected to be minimal in terms of the disruption to the strategic and local networks.
- 8.6.192 Temporary closure of roads and footpaths will be required within the Washwood Heath to Curzon Street area, in order to construct the Proposed Scheme. Associated diversions will be required at certain locations, to manage these closures, and may impact on general traffic, pedestrians, cyclists and bus users.
- 8.6.193 Parking and loading facilities at various commercial businesses and locations along the route of the Proposed Scheme will be necessary, in order to construct the Proposed Scheme through the Washwood Heath to Curzon Street area, and could lead to displaced parking demand.
- 8.6.194 No impacts are expected in regards to waterways and canals or equestrians during construction.
- 8.6.195 The following sections consider, in detail, the temporary impacts, during construction of the Proposed Scheme. Permanent impacts arising from the Proposed Scheme are considered in the assessment of the operation of the Proposed Scheme. The exceptions to this are roads permanently closed to accommodate the Proposed Scheme which will close early during the construction period. These roads are, therefore, also considered in the construction assessment.

#### *Strategic and local road network traffic flows 2026*

- 8.6.196 During the construction of the Proposed Scheme, there will be a number of roads on the strategic and local highway network that may be affected by a temporary increase in traffic flows, resulting from construction of the Proposed Scheme. A number of roads are expected to require highway works or diversions as a result of the alignment of the Proposed Scheme, although, wherever feasible, closures or diversions will take place overnight or at weekends, in order to minimise disruptions.

- 8.6.197 The impact from the construction of the Proposed Scheme, relative to the 2021 future baseline, is set out below. This assessment includes the permanent closure of B4114 Park Street and associated connections with Bordesley Street and Fazeley Street, as well as the temporary closure of the B4114 High Street (Saltley Viaduct).
- 8.6.198 During the construction period, there will be roads on the strategic road network that will be affected by proposed highway works, including:
- A47 Heartlands Parkway: construction of new River Rea overflow culvert, 30 overnight closures and 6 weekend closures over 24 months and short term diversions may be required.
  - A4540 Lawley Middleway (Curzon Circle): upgrading the junction, lane restrictions/closures, 30 overnight closures and 6 weekend closures over 18 months and short term diversions may be required.
  - A4540 Lawley Middleway (City Centre Viaduct): construction of new viaduct, lane restrictions/closure, 30 overnight closures and 6 weekend closures over 26 months and short term diversion may be required.
  - A4540 Lawley Middleway (Garrison Circus): signalisation of junction, lane restrictions/closures, 30 overnight closures and 6 weekend closures over 18 months and short term diversions may be required.
- 8.6.199 As the highway works set out above will, predominantly, be undertaken overnight or at weekend, disruption to traffic overall on the strategic road network, particularly during the average weekday and AM (08:00-09:00) and PM (17:00-18:00) peaks, is expected to be minimal.
- 8.6.200 During the construction period, there will also be a number of roads within the local road network that will be affected by proposed highway works, including:
- Aston Church Road: replacement bridge and carriageway realignment, built offline, weekend and overnight road closures of Aston Church Road, short term diversions may be required;
  - B4114 Saltley Viaduct: reconstruction of overbridge, full closure for 18 months and diversion required;
  - Duddeston Mill Road: new overbridge and viaduct, temporary closures, 30 overnight closures and 6 weekend closures over 36 months and diversion required; and
  - New Canal Street: construction of the Curzon Street station, road restrictions, 60 overnight closures and 12 weekend closures over a 60 month construction period and diversions required.
- 8.6.201 With the exception of the closure of B4114 Saltley Viaduct for 18 months, highway works will generally be completed overnight or at weekends, in order to minimise the impact of construction works on the highway network during a weekday.

- 8.6.202 The 18 month closure of B4114 Saltley Viaduct is required to allow the online reconstruction of the existing over bridge to accommodate the Proposed Scheme. Consideration has been given to the potential impact of the full closure of the Saltley Viaduct on neighbouring roads, in the highway network assessment, with the worst case assumption adopted that all traffic will divert using local roads and, in particular, Aston Church Road and Melvina Road, which run parallel to the Saltley Viaduct, to the east and west respectively.
- 8.6.203 Permanent road closures, which include the B4114 Park Street as part of the Proposed Scheme works, will also affect the distribution of traffic through the city centre and A4540 in 2021. These are discussed, in depth, in operational assessment of the Proposed Scheme.

### Overall network performance

- 8.6.204 As discussed earlier in this report, the BCCM model has been used as the basis for the assessment of the impacts of the construction of the Proposed Scheme in the city centre area. The table below summarises the overall network statistics for the BCCM model for 2021 and provides a comparison between the 2021 future baseline and 2021 during construction of the Proposed Scheme.
- 8.6.205 For the assessment of construction, the BCCM model was used to determine the traffic conditions with the closure of B4114 Park Street and the removal of committed developments on Curzon Street (Curzon Park and Eastside City Park Gate, which would not come forward), to which the traffic associated with the construction of the Proposed Scheme was added. The results below relate to the BCCM model performance with the road closures and removal of committed development only. However the traffic associated with the construction is not expected to be substantial during the peak hours.

Table 8-358: Network performance statistics, 2021 future baseline and with construction

Statistics	AM (08:00-09:00)		PM (17:00-18:00)	
	2021 future baseline	2021 Construction	2021 future baseline	2021 Construction
Transient Queues (PCU.Hrs)	1199.2	1189.9	1190.0	1197.1
Overcapacity Queues (PCU.Hrs)	1077.3	1057.5	550.2	467.6
Cruise Time (PCU.Hrs)	2735.9	2734.2	2683.7	2681.7
Total Travel Time (PCU.Hrs)	5012.4	4981.5	4423.9	4346.4
Travel Distance (PCU.Kms)	120078.6	119907.2	116537.2	116175.4
Average Speed (KPH)	24.0	24.1	26.3	26.7
Total Trips Loaded	42624	42401.8	41423.8	41289.5



- 8.6.206 The above table shows that in both peak hours the change in the overall BCCM model performance is forecast to be minimal, with only very small improvements in performance arising from the removal of traffic associated with the committed developments on Curzon Street. It is not expected that the addition of traffic associated with the construction of the Proposed Scheme would result in a worsening of performance compared to the future baseline conditions.
- 8.6.207 Figure 8-30 and Figure 8-31 show the pattern of change in actual flow across the city centre for the AM (08:00-09:00) and PM (17:00-18:00) peaks respectively, following the closure of the B4114 Park Street (southbound) to traffic to allow for the construction of the Proposed Scheme. The bandwidths represent the difference in flow (in PCU) between the 2021 future baseline with the closure of the B4114 Park Street and the future baseline without the proposed network changes. Red represents an increase in trips during operation whilst green is a decrease. Although the plots do not account for the construction worker or HGV traffic, the main impacts during construction will be associated with the closure of B4114 Park Street.

Figure 8-30: 2021 future baseline with Proposed Scheme (-) future baseline scenario (AM peak)

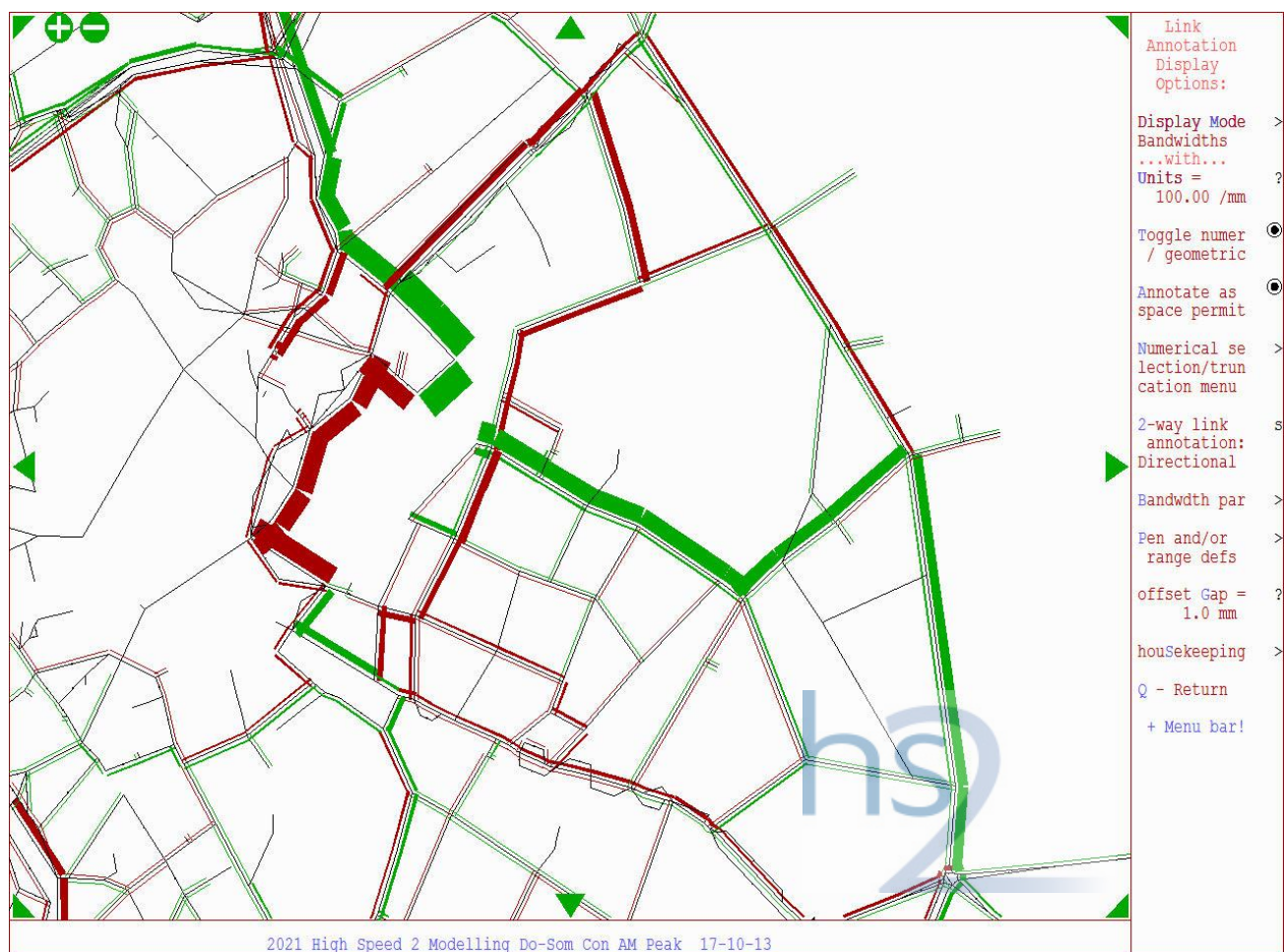
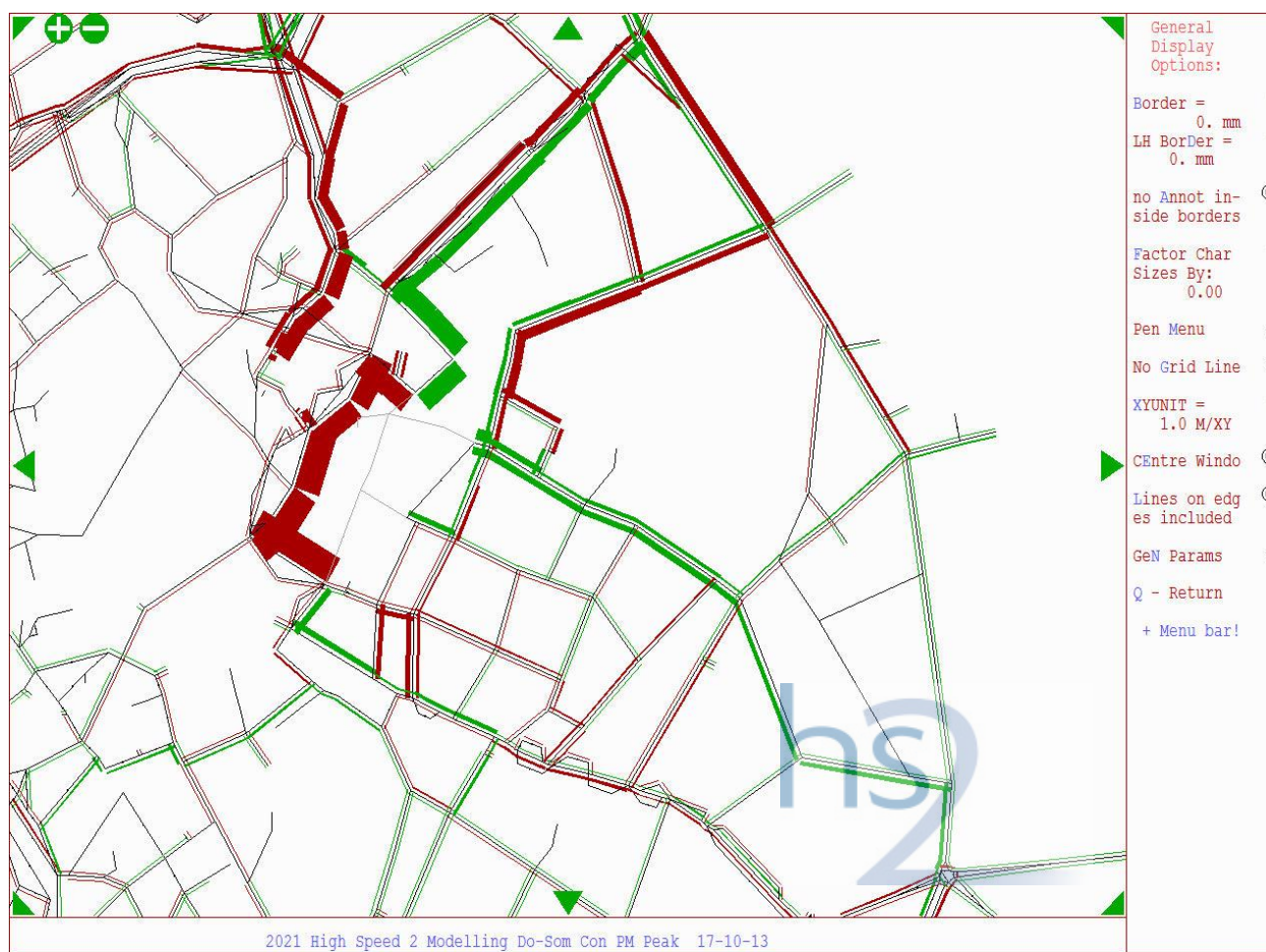


Figure 8-31: 2021 future baseline with Proposed Scheme (-) future baseline scenario (PM peak)



- 8.6.208 The following sections review in detail the impacts across the strategic and local road network associated with the changes in flow arising from construction of the Proposed Scheme.

### Strategic road network - links

- 8.6.209 The tables below summarise the change in flows expected in the AM (08:00-09:00) and PM (17:00-18:00) peak arising from the construction of the Proposed Scheme in the Washwood Heath to Curzon Street area.

#### City centre

- 8.6.210 The tables below summarise the change in flows expected in the AM (08:00-09:00) and PM (17:00-18:00) peak arising from the construction of the Proposed Scheme in the city centre area. The changes in flow represent the maximum flows from the peak months of 22, 27 and 36 in order to present a robust assessment.

- 8.6.211 Construction flows have been derived by taking outputs from the BCCM model. The model was run for 2021 with the closure of B4114 Park Street, as well as the traffic associated with the key developments which are lost due to the Proposed Scheme, removed from the network. Traffic associated with the construction compound activity for the three peak months has been derived from the construction programme, compound and workforce assumptions (described in earlier in this section) and added to the flows derived from the BCCM.

Table 8-359: City centre strategic road network construction traffic flows (vehicles) – AM (0800-09:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 With the Proposed Scheme
A47 Nechells Parkway between Melvina Road and A4540	EB	838	100	811	100	-3.2%	0.5%	26%	26%
	WB	589	120	589	121	0.1%	1.2%	27%	27%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	2011	174	2029	175	0.9%	0.8%	87%	87%
	SB	4780	230	4715	230	-1.4%	0.2%	50%	50%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	2835	247	2794	244	-1.4%	-1.2%	38%	37%
	SB	4849	265	4865	271	0.3%	2.2%	63%	63%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1210	113	1379	118	14.0%	4.4%	72%	81%
	WB	1503	85	1498	81	-0.3%	-4.8%	42%	42%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1476	148	1499	137	1.6%	-7.3%	78%	78%
	SB	1834	188	1836	175	0.1%	-6.8%	81%	81%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1277	121	1281	109	0.3%	-9.7%	54%	53%
	SB	2012	202	2011	189	0.0%	-6.3%	54%	54%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1638	177	1618	176	-1.2%	-0.4%	30%	29%
	SB	2097	216	2163	216	3.2%	0.2%	103%	105%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 With the Proposed Scheme
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1796	144	1768	144	-1.5%	0.2%	94%	92%
	SB	2033	241	2132	232	4.9%	-3.6%	63%	66%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1503	96	1477	96	-1.7%	0.3%	44%	44%
	SB	2021	200	1819	169	-10.0%	-15.4%	52%	47%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1630	86	1642	95	0.7%	10.4%	53%	54%
	SB	1701	216	1629	200	-4.2%	-7.4%	65%	63%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1478	87	1535	116	3.9%	33.3%	92%	98%
	SWB	1254	128	1247	126	-0.6%	-1.6%	35%	35%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1144	131	1141	130	-0.2%	-0.5%	35%	35%
	SB	1269	133	1236	131	-2.6%	-1.2%	112%	109%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	1048	126	1050	126	0.2%	0.0%	76%	76%
	SB	947	217	931	216	-1.7%	-0.4%	89%	88%

Table 8-36o: City centre strategic road network construction traffic flows (vehicles) – PM (17:00-18:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
A47 Nechells Parkway between Melvina Road and A4540	EB	599	45	593	45	-1.0%	0.0%	18%	18%
	WB	696	48	691	48	-0.7%	-0.1%	28%	28%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	3172	61	3163	60	-0.3%	-1.2%	128%	128%
	SB	2728	141	2717	141	-0.4%	0.1%	29%	29%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	3979	93	3858	90	-3.0%	-3.3%	50%	48%
	SB	3490	179	3492	179	0.1%	0.0%	45%	45%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1508	35	1521	35	0.9%	0.0%	84%	85%
	WB	1107	14	1092	14	-1.4%	0.4%	28%	28%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1627	19	1574	19	-3.2%	0.7%	105%	105%
	SB	1513	34	1366	31	-9.7%	-8.4%	60%	54%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1412	18	1325	17	-6.1%	-4.2%	51%	47%
	SB	1597	37	1453	34	-9.0%	-7.8%	40%	37%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1512	45	1487	44	-1.7%	-2.4%	26%	25%
	SB	1515	37	1726	48	13.9%	29.8%	75%	86%
A4540 Lawley Middleway between Curzon	NB	1739	34	1743	34	0.2%	0.4%	93%	94%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Circle and Garrison Circus	SB	1765	39	1836	42	4.0%	8.3%	50%	52%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1068	16	1055	16	-1.2%	1.3%	30%	30%
	SB	1609	29	1599	30	-0.6%	4.4%	38%	38%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1440	25	1389	24	-3.5%	-4.2%	45%	44%
	SB	1764	57	1802	59	2.2%	3.6%	73%	74%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1584	27	1550	27	-2.1%	0.3%	86%	85%
	SWB	1714	44	1700	44	-0.8%	-0.1%	44%	44%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1201	50	1185	50	-1.3%	0.5%	35%	34%
	SB	1428	36	1420	35	-0.5%	-2.1%	117%	116%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	702	76	698	76	-0.6%	0.0%	60%	60%
	SB	1159	60	1149	60	-0.9%	-0.1%	94%	93%

- 8.6.212 In the city centre area, the majority of links will have a reduction in flows with the construction of the Proposed Scheme, compared to the future baseline, due to the removal of traffic associated with committed developments which would not come forward.
- 8.6.213 Links where the traffic flows are forecast to increase include the A4540 Newtown Middleway (between Dartmouth Circus and New Town Row, eastbound), A4540 Lawley Middleway (north of Curzon Circle, southbound, and south of Curzon Circle, southbound), A4540 Highgate Middleway (between Camp Hill Circus and New Moseley Road, northbound), A4540 Bordesley Middleway (between Bordesley Circus and Camp Hill Circus, southbound), and A45 Small Heath Highway (between Golden Hillock Road and Bordesley Circus, southbound). These increases in flows are generally related to the closure of B4114 Park Street to southbound traffic with the construction of the proposed scheme.
- 8.6.214 The tables above also show that two links are expected to have a volume to capacity ratio of greater than 85% with the Proposed Scheme and increase by more than 5% compared to the future baseline. The A4540 Lawley Middleway (southbound approach to Curzon Circle) meets these criteria in the PM (17:00-18:00) peak, with the total flow passing through Curzon Circle also expected to increase (from 4,777 vehicles to 4,856 vehicles). The A4540 Newtown Middleway (northbound approach to Camp Hill Circus) is also expected to meet these criteria in the AM (08:00-09:00) peak; however in contrast to Curzon Circle, the total flow passing through the junction is expected to reduce overall (from 5,147 vehicles to 5,108 vehicles). Therefore, it is not expected that the construction of the Proposed Scheme will impact upon the overall operation of this junction.
- 8.6.215 As the traffic flow increases identified above extend out across the wider city centre area, generally the impacts reduce. However, on A4540 Camp Hill Middleway (northbound) between New Moseley Street and Camp Hill Circus, the v/c increases by 5% to 98%, in the AM (08:00-09:00) peak (08:00 to 09:00).
- 8.6.216 A review of the increases in traffic flows on the strategic road network associated with the construction of the Proposed Scheme identified that Curzon Circle requires further consideration in relation to its operation. Additionally, due to the interaction of Curzon Circle and the adjacent junctions on the A4540 Middleway, Ashted Circus and Garrison Circus are also considered further. Therefore the junctions on the strategic road network in the city centre are that are identified for further assessment are:
- Ashted Circus;
  - Curzon Circle; and
  - Garrison Circus.



*Washwood Heath*

- 8.6.217 The tables below summarise the change in flows expected in the AM (08:00-09:00) and PM (17:00-18:00) peak arising from the construction of the Proposed Scheme in the Washwood Heath area. The changes in flow represent the maximum flows from the peak months of 22, 27 and 36 in order to present a robust assessment.
- 8.6.218 Construction flows have been derived from traffic surveys and factored using TEMPRO growth factors to 2021. The flows have accounted for the temporary closure of B4114 Saltley Viaduct (for 18 months) by assigning traffic from B4114 Saltley Viaduct onto Aston Church Road to the north and B4132 Melvina Road/Duddeston Mill Road to the south. Traffic associated with the construction compound activity for the three peak months has been derived from the construction programme, compound and workforce assumptions (as described earlier in this section) and added to the flows derived from the surveys.

Table 8-361: Washwood Heath strategic road network construction traffic flows (vehicles) - AM (08:00-09:00) Peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	1867	73	1842	88	-1.4%	21.1%	58%	58%
	SB	1418	59	1328	70	-6.3%	18.1%	44%	41%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	747	112	744	122	-0.4%	8.3%	21%	21%
	WB	1734	193	1729	203	-0.3%	5.3%	48%	48%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	705	158	702	167	-0.4%	5.9%	20%	20%
	WB	1613	180	1608	190	-0.3%	5.6%	45%	45%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	523	133	584	88	11.7%	-34.0%	15%	16%
	SB	1284	147	1472	102	14.6%	-30.5%	36%	41%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	1109	112	682	77	-38.5%	-31.8%	35%	21%
	SB	1936	126	1495	106	-22.8%	-16.2%	61%	47%

Table 8-362: Washwood Heath strategic road network construction traffic flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	1867	73	1842	88	-1.4%	21.1%	58%	58%
	SB	1418	59	1328	70	-6.3%	18.1%	44%	41%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	747	112	744	122	-0.4%	8.3%	21%	21%
	WB	1734	193	1729	203	-0.3%	5.3%	48%	48%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	705	158	702	167	-0.4%	5.9%	20%	20%
	WB	1613	180	1608	190	-0.3%	5.6%	45%	45%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	523	133	584	88	11.7%	-34.0%	15%	16%
	SB	1284	147	1472	102	14.6%	-30.5%	36%	41%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	1109	112	682	77	-38.5%	-31.8%	35%	21%
	SB	1936	126	1495	106	-22.8%	-16.2%	61%	47%

- 8.6.219 In the Washwood Heath area, the traffic flows on the majority of the strategic road network links is forecast to reduce compared to the future baseline, due to the net reduction in traffic associated with the Washwood Heath Depot site as part of the Proposed Scheme. The only strategic road link forecast to have increased flow during the construction of the Proposed Scheme is the A47 Heartlands Parkway (between Aston Church Rd and B4114 Saltley Viaduct), due to the local diversion of traffic associated with the closure of B4114 Saltley Viaduct. However, no links on the strategic road network in the Washwood Heath area are forecast to have volume to capacity ratio of greater than 85%.
- 8.6.220 A review of the increases in traffic flows on the strategic road network in the Washwood Heath area associated with the construction of the Proposed Scheme identified no junctions for further consideration in relation to their operation.
- 8.6.221 However, as the A47 will form part of the diversion route associated with the closure of B4114 Saltley Viaduct, and that the A4040 Bromford Lane/Wolseley Drive junction will form the main vehicular access to the proposed construction compound for the proposed depot and tunnel portal, the following junctions have been reviewed in further detail later in this section of the report:
- A4040 Bromford Lane/Wolseley Drive;
  - A47 Heartlands Parkway/B4114 Saltley Viaduct/Mainstream Way roundabout ; and
  - A47 Heartlands Parkway/Aston Church Road roundabout.

#### **Local road network - links**

- 8.6.222 The following tables summarise the change in flows expected in the AM (08:00-09:00) peak and PM (17:00-18:00) periods in the Washwood Heath to Curzon Street area.

##### *City centre*

- 8.6.223 The tables below show the change in flows expected on the local road network in the AM (08:00-09:00) peak and PM (17:00-18:00) peak periods in the city centre area. The tables show the maximum flows from the peak months of 22, 27 and 36 in order to present a robust assessment.
- 8.6.224 Construction flows have been derived by taking outputs from the BCCM model. The model was run for 2021 with the closure of B4114 Park Street, as well as the traffic associated with the key developments which are lost due to the Proposed Scheme, removed from the network. Traffic associated with the construction compound activity for the three peak months has been derived from the construction programme, compound and workforce assumptions (as described earlier in this section) and added to the flows derived from the BCCM.

Table 8-363: City centre local road network construction traffic flows (vehicles) - AM (08:00-09:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	521	15	516	15	-1.0%	0.0%	43%	42%
	WB	623	74	621	73	-0.3%	-1.4%	82%	83%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	234	39	312	58	33.3%	48.8%	12%	17%
	WB	759	61	718	76	-5.4%	24.5%	23%	22%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	351	56	531	75	51.3%	34.0%	12%	18%
	WB	235	62	216	73	-8.1%	17.8%	107%	104%
Cardigan Street between B4114 Jennens Road and Curzon Street	NB	7	1	5	1	-28.6%	0.0%	0%	0%
	SB	59	6	230	15	289.8%	150.0%	12%	67%
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	231	15	287	16	24.4%	9.7%	40%	46%
	WB	383	23	378	24	-1.2%	6.2%	20%	17%
Curzon Street between Cardigan Street and New Canal Street	EB	242	17	237	17	-2.2%	-1.3%	20%	13%
	WB	405	37	525	48	29.6%	29.0%	5%	6%
New Canal Street between Curzon Street and Fazeley Street	NB	258	17	250	16	-3.1%	-5.9%	15%	15%
	SB	423	37	537	47	27.0%	27.0%	26%	33%
Banbury Street	EB	82	4	90	3	9.8%	-25.0%	5%	5%
	WB	29	3	56	2	93.1%	-33.3%	6%	11%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Andover Street	NB	20	0	19	0	-5.0%	0.0%	4%	3%
	SB	50	0	30	0	-40.0%	0.0%	6%	4%
Fazeley Street between Andover Street and New Canal Street	EB	513	47	96	13	-81.3%	-72.3%	31%	6%
	WB	126	10	79	5	-37.3%	-50.0%	21%	10%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	462	40	0	0	-100.0%	-100.0%	52%	0%
	WB	173	16	3	0	-98.3%	-100.0%	9%	0%
New Bartholomew Street	SB	26	1	3	0	-88.7%	-100.0%	2%	0%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	79	9	54	9	-31.9%	-2.2%	6%	4%
	WB	51	5	15	1	-70.4%	-78.3%	4%	1%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	96	5	0	0	-100.0%	-100.0%	14%	0%
	WB	15	3	15	3	0.0%	0.0%	1%	1%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	81	9	227	10	182.0%	8.7%	6%	17%
	SB	125	28	4	0	-96.8%	-100.0%	10%	0%
B4100 between Meriden Street and Oxford Street	EB	325	110	370	105	13.8%	-4.6%	17%	18%
	WB	453	91	470	92	3.8%	1.1%	10%	10%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
B4100 between Park Street and Meriden Street	EB	882	174	715	154	-18.9%	-11.5%	19%	16%
	WB	1171	222	1212	225	3.5%	1.3%	42%	44%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1075	101	0	0	-100.0%	-100.0%	35%	0%
B4100 Park Street between Moor Street and Moat Lane	NB	886	208	919	210	3.7%	1.0%	66%	100%
	SB	629	160	455	140	-27.7%	-12.5%	42%	44%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	851	151	871	167	2.4%	10.6%	57%	59%
Masshouse Lane	EB	197	107	588	176	198.5%	64.5%	34%	75%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	756	130	755	130	-0.1%	0.0%	93%	93%
	SB	115	100	486	153	322.6%	53.0%	28%	69%
B4100 Moor Street	EB	90	77	474	140	426.7%	81.8%	76%	45%
	WB	756	77	789	79	4.4%	2.5%	46%	48%

Table 8-364: City centre local road network construction traffic flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	521	15	516	15	-1.0%	0.0%	43%	42%
	WB	623	74	621	73	-0.3%	-1.4%	82%	83%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	234	39	312	58	33.3%	48.8%	12%	17%
	WB	759	61	718	76	-5.4%	24.5%	23%	22%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	351	56	531	75	51.3%	34.0%	12%	18%
	WB	235	62	216	73	-8.1%	17.8%	107%	104%
Cardigan Street between B4114 Jennens Road and Curzon Street	NB	7	1	5	1	-28.6%	0.0%	0%	0%
	SB	59	6	230	15	289.8%	150.0%	12%	67%
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	231	15	287	16	24.4%	9.7%	40%	46%
	WB	383	23	378	24	-1.2%	6.2%	20%	17%
Curzon Street between Cardigan Street and New Canal Street	EB	242	17	237	17	-2.2%	-1.3%	20%	13%
	WB	405	37	525	48	29.6%	29.0%	5%	6%
New Canal Street between Curzon Street and Fazeley Street	NB	258	17	250	16	-3.1%	-5.9%	15%	15%
	SB	423	37	537	47	27.0%	27.0%	26%	33%



Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Banbury Street	EB	82	4	90	3	9.8%	-25.0%	5%	5%
	WB	29	3	56	2	93.1%	-33.3%	6%	11%
Andover Street	NB	20	0	19	0	-5.0%	0.0%	4%	3%
	SB	50	0	30	0	-40.0%	0.0%	6%	4%
Fazeley Street between Andover Street and New Canal Street	EB	513	47	96	13	-81.3%	-72.3%	31%	6%
	WB	126	10	79	5	-37.3%	-50.0%	21%	10%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	462	40	0	0	-100.0%	-100.0%	52%	0%
	WB	173	16	3	0	-98.3%	-100.0%	9%	0%
New Bartholomew Street	SB	26	1	3	0	-88.7%	-100.0%	2%	0%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	79	9	54	9	-31.9%	-2.2%	6%	4%
	WB	51	5	15	1	-70.4%	-78.3%	4%	1%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	96	5	0	0	-100.0%	-100.0%	14%	0%
	WB	15	3	15	3	0.0%	0.0%	1%	1%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	81	9	227	10	182.0%	8.7%	6%	17%
	SB	125	28	4	0	-96.8%	-100.0%	10%	0%
B4100 between Meriden Street and Oxford Street	EB	325	110	370	105	13.8%	-4.6%	17%	18%
	WB	453	91	470	92	3.8%	1.1%	10%	10%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
B4100 between Park Street and Meriden Street	EB	882	174	715	154	-18.9%	-11.5%	19%	16%
	WB	1171	222	1212	225	3.5%	1.3%	42%	44%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1075	101	0	0	-100.0%	-100.0%	35%	0%
B4100 Park Street between Moor Street and Moat Lane	NB	886	208	919	210	3.7%	1.0%	66%	100%
	SB	629	160	455	140	-27.7%	-12.5%	42%	44%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	851	151	871	167	2.4%	10.6%	57%	59%
Masshouse Lane	EB	197	107	588	176	198.5%	64.5%	34%	75%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	756	130	755	130	-0.1%	0.0%	93%	93%
	SB	115	100	486	153	322.6%	53.0%	28%	69%
B4100 Moor Street	EB	90	77	474	140	426.7%	81.8%	76%	45%
	WB	756	77	789	79	4.4%	2.5%	46%	48%

- 8.6.225 In the city centre, increases in flow of greater than 10% are expected on B4114 Jennens Road (between A4540 Lawley Middleway and Woodcock Street, eastbound, and between Cardigan Street and James Watt Queensway, eastbound), Cardigan Street (southbound), Curzon Street (between A4540 Lawley Middleway and Cardigan Street, eastbound and westbound, and between Cardigan Street and New Canal Street, westbound), New Canal Street (between Curzon Street and Fazeley Street, southbound), Banbury Street (eastbound and westbound), Bordesley Street (between Oxford Street and New Canal Street, eastbound and westbound, and between New Canal Street and New Bartholomew Street, westbound), Meriden Street (between Bordesley Street and B4100 Digbeth High Street, northbound), B4100 Digbeth High Street (between Meriden Street and Oxford Street, eastbound), Masshouse Lane, B4100 Park Street (between Moor Street and Moat Lane, northbound) B4100 Moor Street Queensway (southbound), and B4100 Moor Street (eastbound). The increases are mostly due to the re-routing of traffic due to the closure of B4114 Park Street and connecting roads to construct the Proposed Scheme.
- 8.6.226 Although there are a number of links with forecast increases in traffic flows, only B4100 Park Street (between Moat Lane and Moor Street, northbound) has a v/c ratio greater than 85% and an increase in volume to capacity of greater than 5%, during construction of the Proposed Scheme when compared to the 2021 future baseline.
- 8.6.227 The forecast increases in flows on B4100 Moor Street Queensway are as a result of the closure of B4114 Park Street, and occur in the southbound direction only. The forecast flows in the southbound direction will be substantially less than in the northbound direction (35% less in the AM (08:00-09:00) peak and 28% less in the PM (17:00-18:00) peak). The increase in flows is not forecast to have an impact as the v/c ratio in the southbound direction is less than 85%.
- 8.6.228 As the traffic flow increases identified above extend out across the wider city centre area, generally the impacts reduce. However, congestion impacts have also been identified on the following links:
- Upper Dean Street (northbound) between Dean Street and B4100 Moat Lane, where the v/c increases by 6% to 93% in the AM (08:00-09:00) peak (08:00 to 09:00);
  - Wrentham Street (eastbound) between Gooch Street and Sherlock Street, where the v/c increases by 3% to 99%;
  - Heath Mill Lane (southbound) between Alcock Street and B4100 High Street Deritend, where the v/c increases by 3% to 93%; and
  - Aston Street (eastbound) to Woodcock Street, where the v/c increases by 3% to 92% in the PM (17:00-18:00) peak (17:00-18:00).

8.6.229 The review of traffic flows on the local road network associated with the Proposed Scheme above, has identified one junction that requires further consideration in relation to their operation, B4100 Park Street/B4100 Moor Street junction. However, additional junctions will be considered further due to their proximity to the Proposed Scheme and associated road closures. The junctions on the local road network in the city centre which are identified for further assessment later in this section of the report are:

- B4100 Moor Street/B4100 Park Street;
- B4114 Moor Street Queensway/James Watt Queensway;
- B4114 Moor Street Queensway/Masshouse Lane;
- Curzon Street/Cardigan Street; and
- New Canal Street/Fazeley Street.

*Washwood Heath*

8.6.230 The tables below summarise the change in flows expected on the local road network in the AM (08:00-09:00) and PM (17:00-18:00) peak arising from the construction of the Proposed Scheme in the Washwood Heath area. The changes in flow represent the maximum flows from the peak months of 22, 27 and 36 in order to present a robust assessment.

8.6.231 Construction flows have been derived from traffic surveys and factored using TEMPRO growth factors to 2021. The flows have accounted for the temporary closure of B4114 Saltley Viaduct (for 18 months) by assigning traffic from B4114 Saltley Viaduct onto Aston Church Road to the north and B4132 Melvina Road/Duddeston Mill Road to the south. Traffic associated with the construction compound activity for the three peak months has been derived from the construction programme, compound and workforce assumptions (as described earlier in this section) and added to the flows derived from the surveys.

Table 8-365: Washwood Heath local road network construction traffic flows (vehicles) - AM (08:00-09:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Wolseley Drive	EB	75	9	17	17	-77.9%	76.5%	7%	1%
	WB	146	7	17	17	-88.7%	135.3%	13%	1%
Alstom Access Road south of the A47 Heartlands Parkway	NB	26	14	4	4	-84.1%	-70.9%	2%	0%
	SB	30	11	4	4	-86.6%	-61.2%	2%	0%
Aston Church Road	NB	389	41	722	75	85.3%	82.8%	30%	56%
	SB	567	49	896	84	58.0%	71.6%	44%	69%
Arley Road	NB	99	17	99	18	0.3%	1.8%	8%	8%
	SB	96	13	96	14	0.3%	2.4%	7%	7%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	357	74	269	44	-24.5%	-40.6%	23%	18%
	SB	489	70	368	25	-24.7%	-64.8%	32%	24%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	525	67	417	60	-20.5%	-9.9%	34%	27%
	SB	662	70	370	27	-44.1%	-61.4%	43%	24%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	86	13	86	13	0.3%	2.3%	6%	7%
	SB	39	15	40	15	0.7%	1.9%	3%	3%
Dorset Road between Arley Road and Pennine Way	EB	58	3	58	4	0.5%	9.1%	4%	4%
	WB	36	1	36	1	0.9%	27.2%	3%	3%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	802	108	0	0	-100.0%	-100.0%	52%	0%
	WB	971	115	0	0	-100.0%	-100.0%	63%	0%
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	850	118	46	18	-94.6%	-84.7%	56%	3%
	WB	954	102	97	16	-89.9%	-83.9%	62%	6%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	310	58	595	73	92.0%	25.5%	24%	46%
	SWB	401	51	546	25	36.1%	-51.2%	31%	42%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	374	27	940	98	151.3%	264.8%	29%	72%
	WB	451	19	878	49	94.5%	162.1%	35%	68%
Melvina Road	NB	698	64	1139	95	63.1%	47.5%	78%	127%
	SB	578	81	1007	126	74.3%	55.9%	64%	112%

Table 8-366: Washwood Heath local road network construction traffic flows (vehicles) - PM (17:00-18:00) peak

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
Wolseley Drive	EB	139	4	11	11	-92.1%	214.2%	12%	1%
	WB	72	9	11	11	-84.8%	17.8%	6%	1%
Alstom Access Road south of the A47 Heartlands Parkway	NB	18	2	3	3	-84.4%	16.7%	1%	0%
	SB	8	4	3	3	-66.7%	-22.2%	1%	0%
Aston Church Road	NB	677	36	1151	69	69.9%	90.8%	52%	89%
	SB	511	27	768	60	50.2%	121.7%	39%	59%
Arley Road	NB	125	6	125	7	0.2%	3.2%	10%	10%
	SB	83	12	83	12	0.3%	1.8%	6%	6%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	536	54	193	5	-63.9%	-90.7%	35%	13%
	SB	388	48	275	13	-28.9%	-73.0%	25%	18%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	869	48	454	14	-47.7%	-71.8%	57%	30%
	SB	651	49	280	14	-57.1%	-72.0%	43%	18%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	20	12	20	12	1.0%	1.7%	2%	2%
	SB	74	2	74	3	0.3%	8.3%	6%	6%
Dorset Road between Arley Road and Pennine Way	EB	15	1	15	1	1.4%	18.1%	1%	1%
	WB	64	0	64	0	0.3%	0.0%	5%	5%

Location	Direction	2021 future baseline		2021 with the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2021 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2021 baseline	2021 with the Proposed Scheme
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	927	82	0	0	-100.0%	-100.0%	61%	0%
	WB	871	74	0	0	-100.0%	-100.0%	57%	0%
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	1065	70	91	4	-91.4%	-93.8%	70%	6%
	WB	905	72	27	14	-97.0%	-81.1%	59%	2%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	483	25	671	23	38.7%	-6.5%	37%	52%
	SWB	342	16	408	18	19.3%	7.4%	26%	31%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	434	7	916	31	111.0%	338.7%	33%	70%
	WB	249	11	608	37	144.4%	252.5%	19%	47%
Melvina Road	NB	949	47	1314	69	38.4%	46.9%	105%	146%
	SB	378	20	887	39	134.5%	96.9%	42%	99%



- 8.6.232 In the Washwood Heath area, increases in flow of greater than 10% are forecast on Aston Church Road (northbound and southbound), B4145 Adderley Park Road (between B4114 High Street and Duddeston Mill Road, northbound and southbound), Duddeston Mill Road (between B4145 Adderley Road and Melvina Road, eastbound and westbound) and on Melvina Road (northbound and southbound). These increases in flows are associated with the re-routing of traffic due to the temporary closure of B4114 Saltley Viaduct for a period of 18 months.
- 8.6.233 The volume to capacity ratios for Melvina Road (northbound and southbound) and Aston Church Road (northbound) are forecast to be over 85% during the construction and increase by more than 5% relative to the future baseline.
- 8.6.234 The review of traffic flows on the local road network in the Washwood Heath area associated with the Proposed Scheme, has identified three junctions on the local road network that require further consideration in relation to their operation, as a result of the temporary closure of B4114 Saltley Viaduct. The following junctions are considered in further detail later in this section of the report:
- Duddeston Mill Road/Melvina Road;
  - Aston Church Road/B4114 Washwood Heath Road/Wright Road; and
  - B4145 Adderley Road/Duddeston Mill Road.

### *Junction performance 2026*

#### **Ashted Circus**

- 8.6.235 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at Ashted Circus.

Table 8-367: Ashted Circus 2021 construction future baseline with the Proposed Scheme traffic modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/ capacity RFC	Max queue	Flow (All PCU)	Flow/ capacity RFC	Max queue
A4540 Dartmouth Middleway (N)	1809	0.71	3	1807	0.69	2
A47 Nechells Parkway (E)	936	0.74	3	812	0.67	2
A4540 Lawley Middleway (S)	1403	0.51	1	1373	0.48	1
B4114 Jennens Road (W)	234	0.22	0	311	0.28	1
Total	4382		7	4303		6

17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A4540 Dartmouth Middleway (N)	1464	0.54	1	1331	0.50	1
A47 Nechells Parkway (E)	599	0.37	1	592	0.36	1
A4540 Lawley Middleway (S)	1344	0.44	1	1240	0.38	1
B4114 Jennens Road (W)	447	0.35	1	560	0.42	1
Total	3854		4	3723		4

- 8.6.236 The junction is predicted to operate within capacity in both the AM (08:00-09:00) and PM (17:00-18:00) peaks during construction of the Proposed Scheme. The results also show that during construction there will generally be an improvement in the operation of the junction compared to the 2021 future baseline, due to the reduction in flows brought about by the removal of the traffic associated with the committed developments on Curzon Street (Curzon Park and Eastside City Park Gate).

### Curzon Circle

- 8.6.237 Curzon Circle will form the primary junction for vehicular travel to and from the Curzon Street Station (main) and Curzon Street No.3 Viaduct compounds, with the former comprising one of the primary sites for trip generation by workers and HGVs during construction.
- 8.6.238 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at Curzon Circle.

Table 8-368: Curzon Circle 2021 construction future baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/ capacity % DOS	Max queue	Flow (All PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	305	110	26	340	90	13
A4540 Lawley Middleway (N)	2379	146	452	2444	147	469
Vauxhall Road	717	143	140	716	148	150
A4540 Lawley Middleway (S)	1983	118	184	1954	115	168
Total	9663		868	11187		851

17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	676	117	81	575	111	54
A4540 Lawley Middleway (N)	1564	114	132	1786	138	111
Vauxhall Road	529	90	19	529	99	26
A4540 Lawley Middleway (S)	1784	117	158	1785	132	117
Total	7938		431	8110		352

8.6.239 Curzon Circle is forecast to operate over the optimum capacity threshold in the future baseline assessment in both the AM (08:00-09:00) and PM (17:00-18:00) peaks. In particular, long queuing on the A4540, Vauxhall Road and Lawley Middleway arms is expected in both peaks.

8.6.240 The level of queuing predicted on the A4540 (S) is likely to result in blocking back to Garrison Circus (south) in the 2021 scenarios.

8.6.241 Traffic associated with the construction of the Proposed Scheme has a small impact on the peak hour operation of the junction, however this is not considered to be substantial in the context of the future baseline conditions.

### Garrison Circus

8.6.242 The following tables summarise the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at Garrison Circus.

Table 8-369: Garrison Circus 2021 construction future baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/ capacity RFC	Max queue	Flow (All PCU)	Flow/ capacity RFC	Max queue
A4540 Lawley Middleway (N)	2312	0.76	3	2397	0.77	4
Garrison Lane	481	0.77	4	485	0.72	3
A4540 Watery Lane Middleway (S)	1488	0.98	21	1462	0.95	16
Great Barr Street	572	2.23	229	282	1.10	22
Total	4853		257	4626		45

17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A4540 Lawley Middleway (N)	2082	1.07	91	2135	1.08	106
Garrison Lane	506	0.97	13	485	0.93	9
A4540 Watery Lane Middleway (S)	1015	1.28	134	1002	1.20	100
Great Barr Street	681	1.21	78	652	1.22	74
Total	4284		316	4274		289

- 8.6.243 Garrison Circus is forecast to operate at/over-capacity in the 2021 future baseline and during construction of the Proposed Scheme, with substantial congestion on the A4540 (S) and Great Barr Street arms in the AM (08:00-09:00) peak. During the PM (17:00-18:00) peak, the A4540 (N), A4540 (S) and Great Barr Street arms are likely to see substantial congestion. Overall, the impacts of construction are not considered to be substantial in the context of the baseline conditions.

#### **A4040 Bromford Lane/Wolseley Drive**

- 8.6.244 The junction will form the key point for the concentration of traffic flows associated with the Washwood Heath Depot during operation. It will also provide access to the Bromford tunnel west portal (east) main compound during construction, which comprises one of the primary sites for trip generation by workers and HGVs.
- 8.6.245 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the A4040 Bromford Lane/Wolseley Drive junction.

Table 8-370: A4040 Bromford Lane/Wolseley Drive 2021 construction future baseline with the Proposed Scheme traffic junction modelling results

<b>08:00-09:00</b>	<b>2021 future baseline</b>			<b>2021 with the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (All PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (All PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
A4040 Bromford Lane (N)	1626	104	75	1550	95	52
Bromford Road	815	107	54	785	97	25
A4040 Bromford Lane (S)	1156	64	27	1144	70	28
Wolseley Drive	87	30	1	38	28	1
Total	3684		157	3517		107
<b>17:00-18:00</b>	<b>2021 future baseline</b>			<b>2021 With the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
A4040 Bromford Lane (N)	1930	86	50	1903	84	48
Bromford Road	446	86	10	437	84	9
A4040 Bromford Lane (S)	1122	49	19	1099	48	19
Wolseley Drive	144	65	3	25	18	1
Total	3642		82	3464		76

8.6.246 The junction is forecast to operate over capacity on the A4040 Bromford Lane (north) and Bromford Road approaches in the AM (08:00-09:00) peaks with the Proposed Scheme. However, queuing is expected to reduce across the junction relative to the future baseline, due to the displacement of the businesses on Woseley Drive. A maximum queue of 52 PCU on the A4040 Bromford Lane (N) arm with the Proposed Scheme.

### A47 Heartlands Parkway/Aston Church Road roundabout

8.6.247 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the A47 Heartlands Parkway/Aston Church Road roundabout

Table 8-371: A47 Heartlands Parkway/Aston Church Road roundabout 2021 construction future baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/capacity RFC	Max queue	Flow (All PCU)	Flow/capacity RFC	Max queue
A47 Heartlands Parkway (N)	1507	0.72	3	1344	0.68	2
Aston Church Road (E)	625	0.52	1	894	0.69	2
A47 Heartlands Parkway (S)	509	0.27	0	626	0.34	1
Aston Church Road (W)	289	0.30	1	287	0.30	1
Total	2930		5	3151		6
17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A47 Heartlands Parkway (N)	718	0.37	1	603	0.35	1
Aston Church Road (E)	558	0.31	1	767	0.42	1
A47 Heartlands Parkway (S)	1189	0.52	1	1476	0.66	2
Aston Church Road (W)	569	0.69	2	568	0.88	6
Total	3034		4	3414		10

8.6.248 Compared to the future baseline, the performance of the junction is expected to be comparable with construction of the Proposed Scheme, with minimal queues on all arms. Increases in flows are expected on the Aston Church Road and A47 Heartlands Parkway (south) arms, whilst a reduction is expected on the A47 Heartlands Parkway (north) arm in the AM (08:00-09:00) peak. The changes in flow patterns are associated with the local diversion of traffic from Saltley Viaduct.

### A47 Heartlands Parkway/B4114 Saltley Viaduct/Mainstream Way roundabout

8.6.249 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the A47 Heartlands Parkway/B4114 Saltley Viaduct/Mainstream Way junction.

Table 8-372: A47 Heartlands Parkway/B4114 Saltley Viaduct/Mainstream Way roundabout 2021 construction future baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/capacity RFC	Max queue	Flow (All PCU)	Flow/capacity RFC	Max queue
A47 Heartlands Parkway (N)	1340	0.67	2	1427	0.61	2
B4114 Saltley Viaduct (E )	909	1.04	37	0	0.00	0
Mainstream Way (S)	102	0.25	1	101	0.16	0
B4114 Saltey Road (W)	1109	0.49	1	682	0.29	1
Total	3460		41	2210		3
17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A47 Heartlands Parkway (N)	633	0.33	1	902	0.36	0
B4114 Saltley Viaduct (E )	918	0.70	3	0	0.00	0
Mainstream Way (S)	180	0.22	0	179	0.17	0
B4114 Saltey Road (W)	1833	0.77	3	1325	0.53	0
Total	3564		7	2406		0

8.6.250 The temporary closure of B4114 Saltley Viaduct will result in reduced total traffic through this junction. Relative to the 2021 future baseline, the operation of the junction will improve on all arms in both the AM (08:00-09:00) and PM (17:00-18:00) peaks with construction of the Proposed Scheme.

## Moor Street Queensway

- 8.6.251 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane junctions.

Table 8-373: Moor Street Queensway/James Watt Queensway 2012 construction future baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/capacity % DOS	Max queue	Flow (All PCU)	Flow/capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway						
B4114 James Watt Queensway	1467	100	41	932	81	17
B4114 Jennens Road	316	51	6	311	50	6
B4100 Moor Street Queensway	1050	102	23	1089	74	11
Moor Street Queensway/Masshouse Lane						
Priory Street Queensway	184	44	3	184	44	3
Masshouse Lane	336	41	4	815	84	13
B4100 Moor Street Queensway (S)	926	52	12	926	52	12
Total	4279		89	4257		62



17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway						
B4114 James Watt Queensway	854	82	17	802	75	14
B4114 Jennens Road	671	83	14	361	62	7
B4100 Moor Street Queensway	1194	79	12	1146	68	11
Moor Street Queensway/Masshouse Lane						
Priory Street Queensway	176	44	3	180	47	3
Masshouse Lane	498	61	5	988	95	26
B4100 Moor Street Queensway (S)	502	60	13	897	50	11
Total	3895		64	4374		72

- 8.6.252 Compared to the 2021 future baseline, the operation of Moor Street Queensway/James Watt Queensway is expected to improve in the AM (08:00-09:00) and PM (17:00-18:00) peaks with construction of the Proposed Scheme. At Moor Street Queensway/Masshouse Lane, the junction is forecast to operate within capacity in both the AM (08:00-09:00) and PM (17:00-18:00) peaks. However, increased traffic flows are expected as a result of the closure of Park Street to southbound traffic, with the largest increases in queuing (26 PCU) on Masshouse Lane in the PM (17:00-18:00) peak.

### **Moor Street/Park Street**

- 8.6.253 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the Moor Street/Park Street junction.

Table 8-374: Moor Street/Park Street 2021 construction baseline with the Proposed Scheme traffic junction modelling results

<b>08:00-09:00</b>	<b>2021 future baseline</b>			<b>2021 with the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (All PCU)</b>	<b>Flow/capacity % DOS</b>	<b>Max queue</b>	<b>Flow (All PCU)</b>	<b>Flow/capacity % DOS</b>	<b>Max queue</b>
Park Street (N)	678	32	13	1192	0	0
Car Park	1	1	0	1	4	0
Park Street (S)	1156	47	19	0	49	19
Moor Street	190	41	6	656	31	12
Total	2025		38	1849		31

<b>17:00-18:00</b>	<b>2021 future baseline</b>			<b>2021 With the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/capacity % DOS</b>	<b>Max queue</b>
Park Street (N)	843	47	20	1096	0.0	0
Car Park	17	12	1	15	11	1
Park Street (S)	1080	44	17	0	45	19
Moor Street	377	48	12	1060	50	22
Total	2317		50	2171		42

- 8.6.254 The permanent diversion of southbound traffic from B4114 Park Street as a result of the Proposed Scheme will result in operational improvements on B4114 Park Street (north) relative to the future baseline. Comparable results are expected on all other arms in the AM (08:00-09:00) and PM (17:00-18:00) peaks with construction of the Proposed Scheme, with the exception of Moor Street in the PM (17:00-18:00) peak, where increased queuing is observed due to the re-routing of traffic from B4114 Park Street. A maximum queue of 22PCU is expected on the Moor Street arm of the junction in the PM (17:00-18:00) peak. The junction is forecast to operate well within capacity for all scenarios in 2021.

### **Cardigan Street/Curzon Street**

- 8.6.255 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the Curzon Street/Cardigan Street.

Table 8-375: Curzon Street/Cardigan Street 2021 construction baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/capacity RFC	Max queue	Flow (All PCU)	Flow/capacity RFC	Max queue
Curzon Street West (Eastbound)	243	0.00	0	236	0.00	0
Cardigan Street	59	0.15	0	230	0.53	1
Curzon Street East (Westbound)	404	0.00	0	402	0.00	0
Total	706		0	868		1

17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
Curzon Street West (Eastbound)	457	0.00	0	389	0.00	0
Cardigan Street	3	0.01	0	108	0.26	0
Curzon Street East (Westbound)	180	0.00	0	304	0.00	0
Total	640		0	801		0

8.6.256 During the construction of the Proposed Scheme, the junction is predicted to operate well within capacity in the AM (08:00-09:00) and PM (17:00-18:00) peak periods, with minimal increases in queuing relative to the future baseline.

### **New Canal Street/Fazeley Street**

8.6.257 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the New Canal Street/Fazeley Street junction.

Table 8-376: New Canal Street/Fazeley Street 2021 construction baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/ capacity % DOS	Max queue	Flow (All PCU)	Flow/ capacity % DOS	Max queue
New Canal Street (N)	452	58	9	591	41	5
Fazeley Street (E)	574	30	3	86	40	2
New Canal Street (S)	246	29	4	217	14	1
Fazeley Street (W)	514	56	10	0	0	0
Total	1786		26	894		8
17:00-18:00	2021 future baseline			2021 With the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
New Canal Street (N)	229	25	3	345	23	2
Fazeley Street (E)	204	26	4	43	23	1
New Canal Street (S)	425	44	7	346	23	2
Fazeley Street (W)	289	45	6	0	0	0
Total	1147		20	734		5

8.6.258 The table above shows that the junction predicted to operate within capacity in 2021 with construction of the Proposed Scheme, in both the AM (08:00-09:00) and PM (17:00-18:00) peak periods. Queuing levels are comparable on all arms to the 2021 future baseline, with a maximum queue of 7 PCU on the New Canal Street (south) arm in the AM (08:00-09:00) peak.

### Duddeston Mill Road/Melvina Road

8.6.259 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the Duddeston Mill Road/Melvina Road junction.

Table 8-377: Duddeston Mill Road/Melvina Road 2021 construction baseline with the Proposed Scheme modelling results

<b>08:00-09:00</b>	<b>2021 future baseline</b>			<b>2021 with the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (All PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (All PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Duddeston Mill Road (W)	279	0.00	0	282	0.00	0
Melvina Road (N)	578	0.12	42	1007	2.52	579
Duddeston Mill Road (E )	690	1.21	75	1133	1.99	540
Total	1547		116	2422		1119

<b>17:00-18:00</b>	<b>2021 future baseline</b>			<b>2021 With the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity %</b>	<b>Max queue</b>
Duddeston Mill Road (W)	116	0.00	0	118	0.00	0
Melvina Road (N)	378	0.82	7	887	1.93	363
Duddeston Mill Road (E )	978	1.51	262	1344	2.10	688
Total	1472		269	2349		1052

8.6.260 As a result of the traffic diversions resulting from the temporary closure of the B<sub>4114</sub> Saltley Viaduct, large increases in queuing are forecast on the Melvina Road (north) and Duddeston Mill Road (east) arms during construction of the Proposed Scheme in both the AM (08:00-09:00) and PM (17:00-18:00) peaks. The Duddeston Mill Road (east) arm is already anticipated to operate over capacity in the 2021 future baseline, and as this is an existing capacity issue, it is expected that highway improvements may be required with or without the Proposed Scheme.

8.6.261 It should be noted that the traffic counts which form the basis of the junction assessments do not appear to replicate recently observed traffic patterns at the junction. The long queue predicted by the junction assessment is due to the survey data showing that approximately 95% traffic on Duddeston Mill Road turned right into Melvina Road - recent observations show that approximately 50% of traffic on Duddeston Mill Road turns right.

8.6.262 Also, as reported in the context of the impacts on link flows, traffic diverting from B<sub>4114</sub> Saltley Viaduct is likely to divert over a wider area than that assumed in the assessments, thereby reducing the likely impacts on this junction. Therefore, whilst the construction of the Proposed Scheme, and in particular during the temporary closure of B<sub>4114</sub> Saltley Viaduct, is anticipated to have an impact at this junction, the junction modelling is considered to over-estimate the impacts.

**Aston Church Road/B4114 Washwood Heath Road/Wright Road**

8.6.263 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the Aston Church Road/B4114 Washwood Heath Road/Wright Road junction.

Table 8-378: Aston Church Road/Washwood Heath Road 2021 construction baseline with the Proposed Scheme traffic junction modelling results

<b>08:00-09:00</b>	<b>2021 future baseline</b>			<b>2021 with the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (All PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (All PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
Aston Church Rd	338	82	11	680	126	127
Washwood Heath Rd (E)	960	82	18	956	126	165
Wright Rd	123	56	4	122	76	122
Washwood Heath Rd (W)	469	45	8	326	44	11
<b>Total</b>	<b>1890</b>		<b>40</b>	<b>2084</b>		<b>424</b>

<b>17:00-18:00</b>	<b>2021 future baseline</b>			<b>2021 With the Proposed Scheme construction traffic</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
Aston Church Rd	435	92	18	1026	128	178
Washwood Heath Rd (E)	771	92	15	768	127	139
Wright Rd	135	70	4	133	107	14
Washwood Heath Rd (W)	633	68	15	200	34	6
<b>Total</b>	<b>1974</b>		<b>52</b>	<b>2127</b>		<b>338</b>

8.6.264 Compared to the 2021 future baseline, large increases in queuing are expected on the Aston Church Road and B4114 Washwood Heath Road (E) arms with construction of the Proposed Scheme. A maximum queue of 165 PCU vehicles is predicted on the Washwood Heath Road (E) arm during the AM (08:00-09:00) peak, and a maximum queue of 178 PCU has been predicted on the Aston Church Road arm in the PM (17:00-18:00) peak.

8.6.265 The junction is therefore expected to operate over capacity in both the AM (08:00-09:00) and PM (17:00-18:00) peaks, and is the result of the local re-routing of traffic associated with Saltley Viaduct, to Aston Church Road and Duddeston Mill Road, which are assumed for the purposes of this report to form the key diversionary routes. However, as reported in the context of the impacts on link flows, traffic diverting from B4114 Saltley Viaduct is likely to divert over a wider area than that assumed in the assessments, thereby reducing the likely impacts on this junction.

### Adderley Road/Duddeston Mill Road

8.6.266 The following table summarises the results of applying traffic and changes associated with construction of the Proposed Scheme to the 2021 future year baseline assessment at the Adderley Road/Duddeston Mill Road junction.

Table 8-379: Adderley Road/Duddeston Mill Road 2021 construction baseline with the Proposed Scheme traffic junction modelling results

08:00-09:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (All PCU)	Flow/ capacity % DOS	Max queue	Flow (All PCU)	Flow/ capacity % DOS	Max queue
Duddeston Mill Road	409	94	12	1068	164	258
Adderley Road (N)	469	95	14	579	159	142
Ash Road	360	89	9	360	163	87
Adderley Road (S)	353	72	7	351	76	12
Total	1591		42	2358		499
17:00-18:00	2021 future baseline			2021 with the Proposed Scheme construction traffic		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Duddeston Mill Road	443	88	10	956	128	146
Adderley Road (N)	363	88	9	431	126	66
Ash Road	356	83	8	353	124	51
Adderley Road (S)	291	69	6	290	56	9
Total	1453		33	2030		271

8.6.267 Compared to the 2021 future baseline, increases in queuing are expected on all arms of the junctions, with the junction operating over capacity during construction of the Proposed Scheme. Increased flow is expected to pass through the junction as a result of the potential local diversion of traffic from B4114 Saltley Viaduct to Melvina Road via Duddeston Mill Road.

- 8.6.268 The Duddeston Mill Road and B<sub>4145</sub> Adderley Road arms are already anticipated to operate over capacity in the 2021 future baseline AM (08:00-09:00) peak, indicating that the junction will have a capacity issue regardless of the Proposed Scheme. Furthermore, as reported in the context of the impacts on link flows, traffic diverting from B<sub>4114</sub> Saltley Viaduct is likely to divert over a wider area than that assumed in the assessments, thereby reducing the likely impacts on this junction.

### *Summary of highway impacts*

- 8.6.269 The construction of Curzon Street station will require the closure of some roads locally. In particular, the closure of B<sub>4114</sub> Park Street southbound will result in background traffic re-routing via the A<sub>4540</sub>, via B<sub>4100</sub> Moor Street Queensway, and via New Canal Street to travel southbound through the city centre.
- 8.6.270 An assessment of the impacts on the strategic road network shows that the A<sub>4540</sub> Lawley Middleway/Curzon Street junction at Curzon Circle will experience an impact from these changes, in relation to traffic flow and congestion. These impacts may also have an impact on the adjacent junctions at Ashted Circus and Garrison Circus.
- 8.6.271 Detailed modelling of Curzon Circle junction has been completed, to assess the scale of impact, and it indicates that queuing levels and delay will increase at Curzon Circle, particularly on the A<sub>4540</sub> arms, however the impact was not considered to be substantial in the context of the baseline conditions.
- 8.6.272 Modelling of Ashted Circus and Garrison Circus has indicated that Ashted Circus will continue to operate within capacity in 2021 during construction of the Proposed Scheme. At Garrison Circus, the impacts were similar to Curzon Circle, in that a worsening of performance is forecast but this is not substantial in the context of the baseline conditions.
- 8.6.273 There are no substantial impacts on the strategic road network associated with the Washwood Heath Depot, as generally the traffic generated by the construction works during the peak hours will represent a reduction in trips accessing the site of the proposed depot due to the displacement of existing business from the site to accommodate the Proposed Scheme.
- 8.6.274 In terms of the local road network, no impacts have been identified in the city centre. However in the Washwood Heath area, the impacts are predicted at the following junctions due to the temporary closure of B<sub>4114</sub> Saltley Viaduct:
- Duddeston Mill Road/Melvina Road;
  - B<sub>4114</sub> Washwood Heath Road/Aston Church Road/Wright Road; and
  - B<sub>4145</sub> Adderley Road/Duddeston Mill Road.



### *Accidents and safety*

8.6.275 The baseline safety analysis identified seven locations which had experienced 9 or more Personal Injury Accidents over a three year period, these included:

- A47/Aston Church Road;
- A47/B4114 Saltley Viaduct;
- A4540 Dartmouth Circus;
- Moor Street Queensway/Masshouse Lane junction;
- A4540 Garrison Circus;
- A4540 Bordesley Circus; and
- A4540 Camp Hill Circus.

8.6.276 The construction of the Proposed Scheme will not result in large increase in flows at these locations, compared to the 2021 future baseline. Therefore, any increases in flows associated with the construction of the Proposed Scheme are not anticipated to exacerbate existing safety concerns, with a number of the road links assessed expected to experience a reduction in flows, which will result in reduced accident rates on these roads.

### *Parking*

8.6.277 The construction of the Proposed Scheme will result in a loss of parking, predominantly off-street private parking and loading bay facilities, both permanently and temporarily. Only designated on-street parking spaces, privately owned pay and display car parks and car parks at businesses that will lose spaces, but are not displaced as a result of the Proposed Scheme, are considered to be impacted upon within the assessment. The impacts associated with the permanent removal of parking facilities within the Washwood Heath to Curzon Street area are considered as part of the assessment of the operation of the Proposed Scheme.

8.6.278 The construction of the Proposed Scheme will result in the temporary loss of staff parking, visitor parking, HGV parking, or loading bays at eight locations, as summarised in the table below.

Table 8-380: Temporary loss of parking spaces associated with the construction of the proposed scheme

Location	Business	Type	Parking spaces	Spaces lost
Dollman St (East)	Betrex	Staff Parking	35 (approx)	20 (approx)
Dollman St (East)	Birmingham Museum Collection Centre	Staff Parking	48	3
		HGV Parking/Loading	3	3
Alma Crescent (South)	Howell Group/CRH Transport Training	Staff Parking	40 (approx)	15 (approx)
		HGV Parking	10 (approx)	10 (approx)
Duddeston Mill Rd (North)	Network Rail Signalling	Staff Parking	56	26
		Disabled	3	2
Mainstream Way (East)	Mainstream Industrial Park	Staff/Visitor Parking	76 (approx)	20 (approx)
A47 Heartlands Parkway (South)	Lookers	Car Showroom	233 (approx)	190 (approx)
St. James' Place	West Midlands Fire Service	Staff/visitor parking	250 (approx)	116 (approx)
		HGV Parking/Loading	4	4
Landor Street	Crown International	Staff/HGV parking	150 (approx)	68 (approx)

8.6.279 With the exception of the Network Rail Signalling Centre, there are likely to be limited opportunities to reallocate the parking on site, and, therefore, consultation with the businesses affected will be undertaken to identify suitable alternative options.

8.6.280 Construction of the Proposed Scheme will also lead to a permanent loss of parking at the following locations. These are discussed in more detail in the operation assessment:

- On-street pay and display parking on Fazeley Street;
- Curzon Street pay and display car park;
- Seymour Street pay and display car park;
- Albert Street surface level pay and display car park;
- Freightliner Terminal Depot, located on Landor Street;
- E Cosway (UK) Ltd, located on Network Park;
- Crown International, located at Landor Street; and
- Salts Medilink Distribution Centre, located on Network Park.

### *Rail*

- 8.6.281 The construction of the Proposed Scheme in the Washwood Heath to Curzon Street area will require temporary possessions of existing rail infrastructure.
- 8.6.282 Rail possessions will be agreed through close working with Network Rail, to ensure that disruption is minimised. Rail possessions will be limited, where practicable, to off-peak, weekend and short duration possessions, which will be planned to minimise disruption to rail users wherever possible.
- 8.6.283 The most substantial possession required is a 168 hour possession in relation to the construction of the bridge over the Network Rail bridge associated with the Stechford to Aston line. However this line is a lightly used freight line and Network Rail diversion route, and therefore it is not expected that substantial disruption would occur. In addition to this there are expected to be approximately 10 weekend possessions, with the vast majority of works undertaken within overnight possessions of the railway having little to no impact on passengers using the strategic or local rail network.
- 8.6.284 Rail replacement services will be provided as necessary when rail possessions are in place.

### *Local bus and coach*

- 8.6.285 The closure of B4114 Park Street and the temporary closure of B4114 Saltley Viaduct during construction of the Proposed Scheme will require the diversion of several bus services on to alternative routes.
- 8.6.286 During the construction of the Proposed Scheme, B4114 Park Street will be closed permanently between Masshouse Lane and Shaws Passage. Seven bus services, currently routing along B4114 Park Street, will therefore need to be diverted via Masshouse Lane and B4100 Moor Street Queensway to use existing bus stops on B4100 Moor Street Queensway. The allocation of bus stops will need to be agreed with BCC/Centro closer to the time of implementation. Further details of the services affected are reported in the operation section of this report.
- 8.6.287 The temporary closure of B4114 Saltley Viaduct during construction of the Proposed Scheme will result in the diversion of bus routes. It is assumed that the bus services would, generally, be diverted via Aston Church Road, due to height restrictions for double decker buses at Duddeston Mill Road. In the worst case, bus routes would be diverted by a distance of approximately 1.5 km, which would represent an increase in journey time of approximately three minutes. The diversion distance assumes that buses will still need to pick up passengers on the B4114 Washwood Heath Road, east of the B4114 High Street (Saltley Viaduct). In total, nine bus routes are likely to be impacted, and these are summarised in the table below.

- 8.6.288 In practice current services which route via B4114 Saltley Viaduct use a combination of double decker and single decker buses, and therefore some services could reroute via Duddeston Mill Road. In addition, Washwood Heath Road is currently well served by bus services which route via Duddeston Mill Road, so there may not be a need for buses which are diverted via Aston Church Road to route stop at bus stops on Washwood Heath Road to the south of Aston Church Road, thereby substantially reducing the diversion distance which has been assumed.

Table 8-381: Diversion of bus routes associated with the temporary closure of Saltley Viaduct

Bus route	Hourly service level	Diversion distance (km)	Duration of diversion
14	7	1.45	18 Months
53	2	1.45	18 Months
55	4	1.45	18 Months
55A	4	1.45	18 Months
56	1	1.45	18 Months
72	3	1.45	18 Months
8A	4	1.45	18 Months
8C	4	1.45	18 Months
90	2	1.45	18 Months
94	8	1.45	18 Months
AH5	1 per day	1.45	18 Months

- 8.6.289 The construction of the Proposed Scheme will not result in disruption to coach services due to temporary closure or diversions. The closure of B4114 Park Street may impact coach services routing southbound to Digbeth Coach Station, however the impacts of the closure of B4114 Park Street are expected to be minimal and commensurate with those discussed for local bus services in the section above.

### *Public transport interchanges*

- 8.6.290 The closure of the B4114 Saltley Viaduct may result in the relocation of up to five bus stops (SA, SB, SC, SK and SL) during construction of the Proposed Scheme, whilst the closure of the B4114 Park Street will result in the permanent relocation of bus stops (PA1 and PA2) relating to bus services that currently use B4114 Park Street, to B4100 Moor Street Queensway.

- 8.6.291 Signage and information will be provided to inform users of these affected bus services of the alternative locations for boarding and alighting buses. For services affected by the closure of B4114 Saltley Viaduct it is likely that passengers will be advised to board services from the B4114 Washwood Heath Road, and services affected by the closure of B4114 Park Street would reroute via B4100 Moor Street Queensway.

### *Pedestrians and cyclists*

- 8.6.292 The following table summarises the changes, in terms of pedestrian delays, as a result of the proposed changes to Public Rights of Way (PRoW) impacted by construction of the Proposed Scheme.
- 8.6.293 Where PRoWs have been identified as being impacted by the construction of the Proposed Scheme, mitigation will focus on the diversion of pedestrians to suitable routes, given the permeability of the Washwood Heath to Curzon Street area and the alternative options available.
- 8.6.294 The table below summarises the works and diversions proposed to mitigate the impact of the Proposed Scheme on the PRoWs during construction.

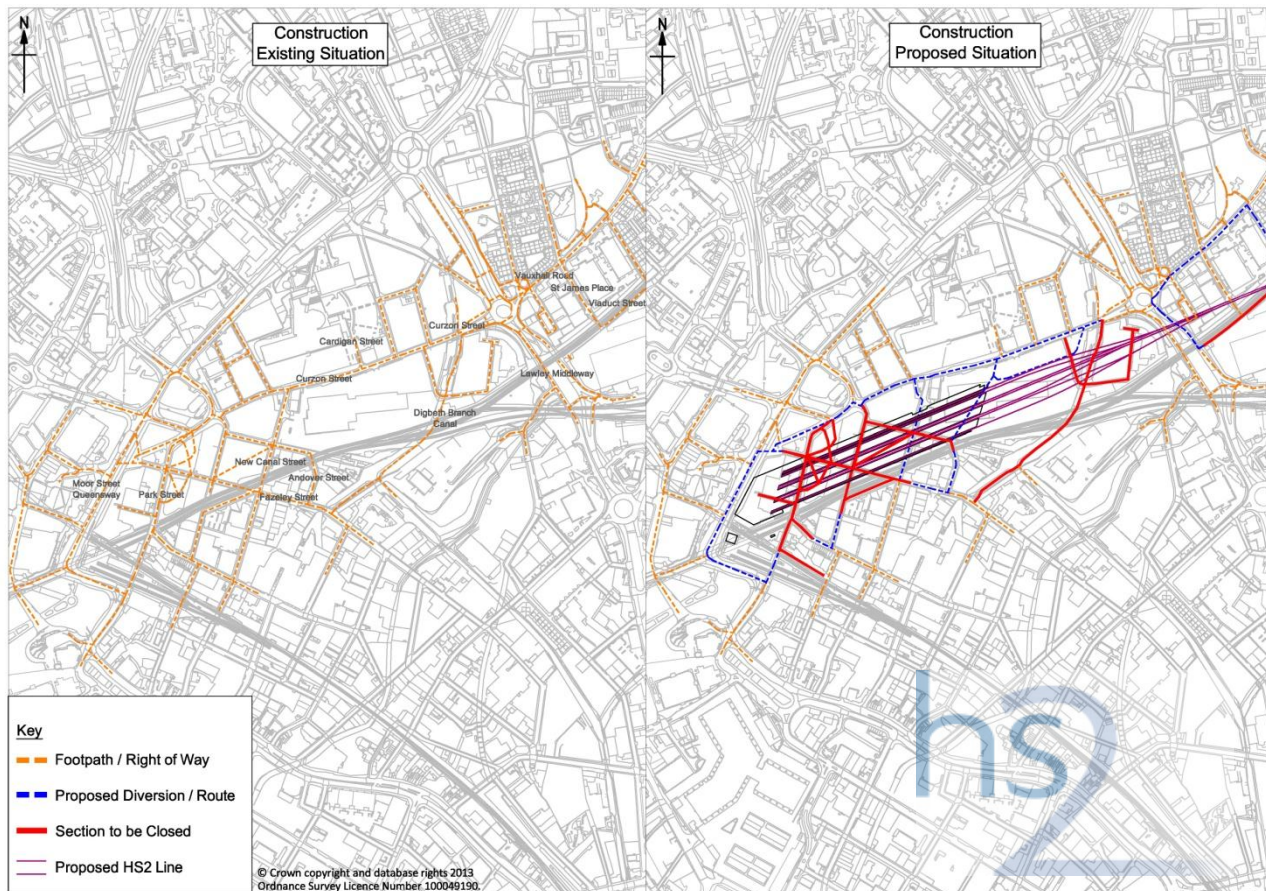
Table 8-382: Mitigation of severed PRoWs

Site ID	Location	Mitigation
48	Aston Church Road	Construction of new overbridges. Local diversions adjacent to bridge works.
49	Grand Union Canal	Construction of Grand Union Canal underbridge. Temporary route adjacent to canal.
50	Saltley Viaduct	Construction of new Saltley carriageway viaduct and new Saltley canal underbridge. Divert via Mainstream Way, Duddeston Mill Road and Crawford Street.
51	Duddeston Mill Road	Construction of new overbridge and the Proposed Scheme viaduct. Divert via Crawford Street, Heartlands Parkway and Mainstream Way.
53	Viaduct Street	Viaduct Street to be closed to traffic. No mitigation proposed.
54	St James Place	St James Place to be partially closed. No mitigation proposed.
55	Lawford Close	Lawford Close to be partially closed. No mitigation proposed.
56/57	Lawley Middleway	Construction of new viaduct. Divert via Viaduct Street, St James' Place and Vauxhall Road.
58	Digbeth Branch Canal towpath	Canal Path closed for construction of new viaduct. Pedestrians diverted along Curzon Street, New Canal Street and Fazeley Street.
61/64	Banbury Street	Banbury Street to be closed. No mitigation proposed. Users diverted along New Canal Street.
65	Bartholomew Street, North of Fazeley Street	Bartholomew Street to be closed. No mitigation proposed. Pedestrians diverted along New Canal Street.

Site ID	Location	Mitigation
66	Fazeley Street, West of Bartholomew Street	Fazeley Street to be closed. No mitigation proposed. Pedestrians diverted via Moor St Queensway and New Canal Street
67	Park Street, South of Fazeley Street	Park Street closed and pedestrians diverted along Moor Street Queensway.
68/69	Link between Fazeley Street and Park Street	Grass area removed. Pedestrians diverted along Park street, Meriden Street, New Canal Street
70	Link between Banbury Street/Bartholomew Street	Grass area to be removed. Pedestrians diverted along Moor Street Queensway, Masshouse Lane, Curzon Park and New Canal Street.

8.6.295 The proposed diversion routes for footpaths impacted in the vicinity of Curzon Street are shown in the figure below.

Figure 8-32: Footpath diversion routes during construction, in the vicinity of the proposed Curzon Street station



8.6.296 During construction of the Proposed Scheme, there will be additional walking distances on 11 roadside footway links and four footway links, with nine of the footway links requiring a diversion of more than 500m, including Saltley Viaduct, Duddeston Mill Road, Viaduct Street, St James Place, Lawford Close, Bartholomew Street, Fazeley Street, Park Street, the Digbeth Branch Canal towpath and the footpath links across Fazeley Street and Park Street.

8.6.297 The location of PROWs and diversion routes are summarised in the table above and the associated drawing.

8.6.298 The location of the Proposed Scheme will cross cycle routes at five locations comprising Bromford Island, Aston Church Road, Duddeston Mill Road and two routes adjacent to Curzon Gateway. Only the following routes will be impacted by the construction of the Proposed Scheme:

- An advisory on-road cycle route along Aston Church Road which crosses over the Proposed Scheme railway line will be temporarily closed during 30 overnight and six weekend closures;
- An advisory on-road cycle route along Duddeston Mill Road which crosses over the Proposed Scheme railway line will be temporarily closed during 30 overnight closures and six weekend closures; and
- The demolition of the student accommodation at Curzon Gateway will result



in the removal of an off-road cycle route at this location. However, as the sole purpose of this route is to benefit the student residents of the Curzon Gateway, no impact is expected.

- 8.6.299 As well as the above, the construction of Curzon Street Station will sever a signed on-road cycle route at Fazeley Street. Cyclists will be required to modify their route and either access an off-road cycle route adjacent to the Birmingham and Fazeley Canal or use the New Canal Street advisory on-road cycle route.

### *Taxis*

- 8.6.300 There will be no construction activity impacts on taxis in the Washwood Heath to Curzon Street area, other than short term and localised road closures. It is not expected that there will be an impacts on taxi operations in the CFA.

### *Waterways and Canals*

- 8.6.301 Although the Proposed Scheme, and associated construction activities, cross over waterways within the Washwood Heath to Curzon Street area, there are no diversions or closure of navigable waterways during construction within this CFA. However, towpaths adjacent to the Grand Union Canal (Saltley Canal Underbridge) and Digbeth Branch Canal (City Centre Viaduct) will require temporary diversions for pedestrians and cyclists, as set out earlier in this section.
- 8.6.302 The maximum daily usage observed during the PRow surveys on these towpaths in 2012 was 22 on the Grand Union Canal and 40 on the Digbeth Branch Canal. In the context of the low daily usage of these towpaths, and temporary diversions required will not be substantial.

### *Air transport*

- 8.6.303 Birmingham Airport is located to the east of Birmingham and is included in the Birmingham Interchange and Chelmsley Wood area (CFA24) section of this report, and any impacts on air transport during construction of the Proposed Scheme will be assessed in that section.

### *Mitigation of impacts*

- 8.6.304 The engineering and construction design has been conceived, as such, to minimise the impacts during construction. The following measures have been included as part of the engineering design of the Proposed Scheme and will avoid or reduce impacts on transport users:
- off line construction of new road infrastructure on Aston Church Road;
  - restricting road closures to overnights and weekends, where reasonably practicable;



- construction materials and equipment will be transported along the haul road adjacent to the Proposed Scheme alignment, where possible, to reduce lorry movements on the public highway; and
- lorry routes for construction equipment and materials will be defined, to ensure only the most suitable roads are used.

8.6.305 HGV routing, as far as possible, via the strategic road network, with:

- surplus spoil material to be reused, wherever possible, along the alignment of the Proposed Scheme, which will reduce lorry movements on the public highway;
- temporary diversion of seven footways;
- maintaining or re-providing access to properties and businesses adjacent to the Proposed Scheme;
- off-site accommodation for site workers, with transport provided to transfer workers between the accommodation and worksites; and
- on site welfare facilities to reduce daily travel by site workers.

8.6.306 The measures in the CoCP will include clear controls on vehicle types, hours of site operation and routes for heavy goods vehicles, to reduce the impact of road based construction traffic. In order to achieve this, generic and site specific traffic management measures will be discussed with BCC and may include measures on or adjacent to public roads, bridleways, footpaths and other PRow, as necessary

8.6.307 Where reasonably practicable, the number of private car trips to and from the construction sites (both workforce and visitors) will be reduced by encouraging alternative modes of transport or vehicle sharing. A framework construction workers travel plan will be produced by each principal contractor, which will aim to encourage the use of sustainable modes of transport and reduce the impact of workforce traffic on the highway network.

### **Washwood Heath to Curzon Street Station Proposed Scheme operation description**

8.6.308 The Washwood Heath to Curzon Street area will include two primary generators/attractors of trips associated with the Proposed Scheme, comprising the Washwood Heath Depot and the Curzon Street station.

8.6.309 Access to the Washwood Heath Depot will be provided from a re-aligned Wolsley Drive, which will form the only point of vehicular access to the site. The realigned access road will retain the exiting signalised junction configuration with the A4040 Bromford Lane and Bromford Drive. Combined footways/cycleways will be provided on both sides of Wolsley Drive, to encourage pedestrian and cycle movements to and from the site.

- 8.6.310 In addition to the Wolseley Drive access there will be two further points of access. The first will be a pedestrian/emergency point of access, taken from an existing pedestrian route into the site at Aston Church Road. This will be resurfaced and enhanced with the provision of lighting. The second entrance will be an additional pedestrian/emergency point of access, taken from Common Lane.
- 8.6.311 The proposed Washwood Heath Depot, its accesses, and location in the context of the local area are shown earlier in this section, in Maps CT-06-139b and CT-06-140 (Volume 2, Map Book 26).
- 8.6.312 The Curzon Street station would extend to Moor Street Queensway and will form the Birmingham terminus of the Proposed Scheme. Two station entrances will be provided, with the main entrance fronting Moor Street Queensway at ground level, whilst also linking to Moor Street Station via a connecting internal walkway. There would be a lower eastern entrance beneath the platforms, close to the vehicular drop-off point and the existing Grade 1 listed former Curzon Street station building. Lifts, stairs and escalators would convey passengers to and from the western concourse and platforms.
- 8.6.313 The station would include provision for, short stay drop-off and pick-up area (60 spaces) and a taxi drop-off (11 spaces) and pick-up facilities (40 spaces) and staff car parking. Car parking for staff and short stay pick-ups and drop-offs will be provided at ground level, beneath the eastern extent of the elevated station structure. Access and egress to the car park will be via a new one way loop road. This will be provided to the south of Curzon Street, with access/egress provided at two new T-junctions, located opposite Millennium Point (for access) and to the east of Penn Street (for egress). The egress point will also serve as an access point for the Gun Barrel Proof House.
- 8.6.314 The primary point for domestic taxi drop-offs would comprise Curzon Street, north-east of the Grade I listed former Curzon Street station building. The purpose built taxi pick-up area will be located near Park Street, between Moor Street Station and the Curzon Street station, and will be accessed via a new link road which will intersect the Proposed Scheme and the Rugby to Birmingham line alignments.
- 8.6.315 The main entrance to Curzon Street station will be on B4114 Moor Street Queensway, and will be for access by non-car modes only. The main entrance will offer excellent connections to local bus services as B4114 Moor Street Queensway is one of the main bus interchanges in the city centre.
- 8.6.316 Cycle parking areas will be provided close to each of the entrances to the station, to encourage passengers to travel by bicycle. The site is well located to take advantage of existing local cycle routes in and around the city centre.

8.6.317 Figure 8-34 show the proposed Curzon Street station in the context of local transport connections, and demonstrates the accessibility of the site by all modes, and in particular by rail, bus, and on foot. Also shown is the location car parking, taxi pick up and drop off areas, and the location of proposed cycle parking.

Figure 8-33: Station impacts (operations) (Map TR-01-026)

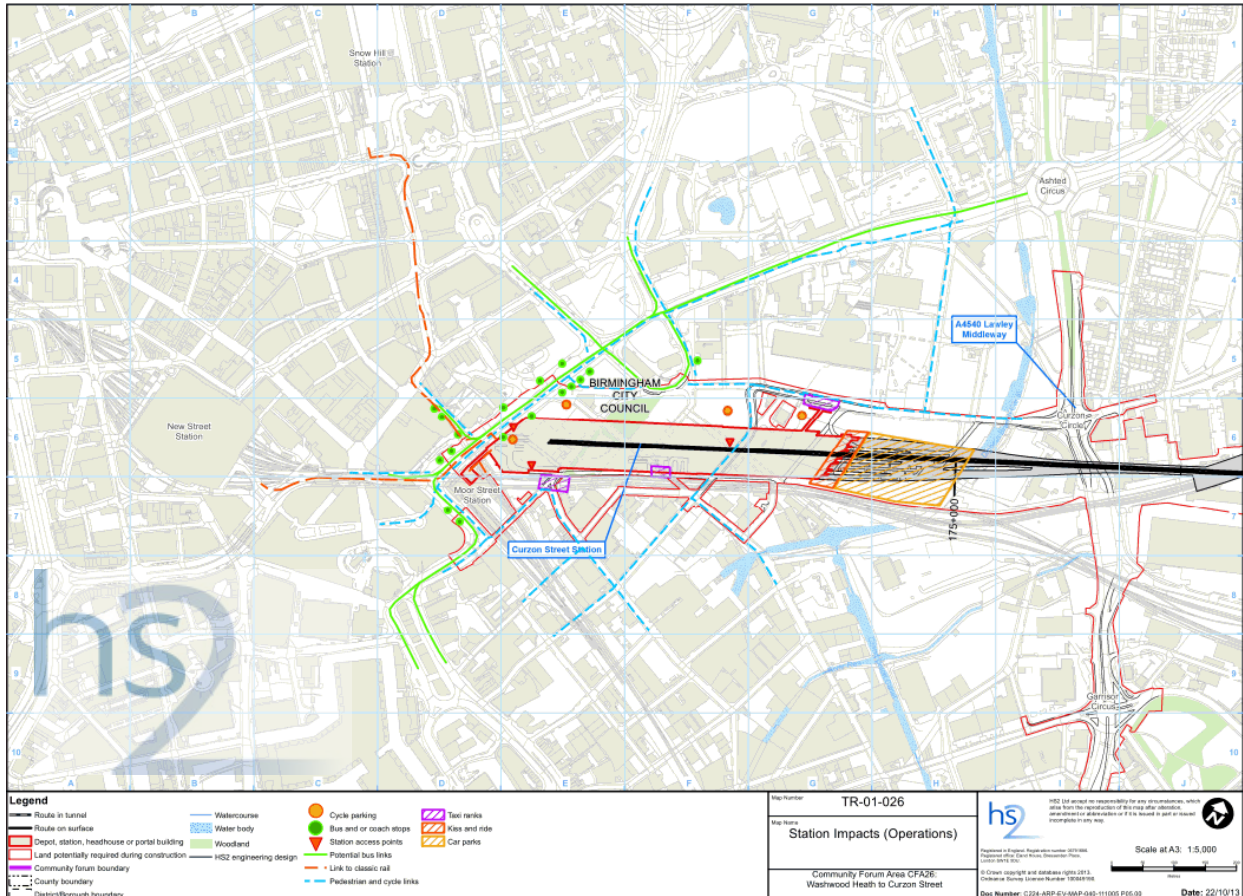
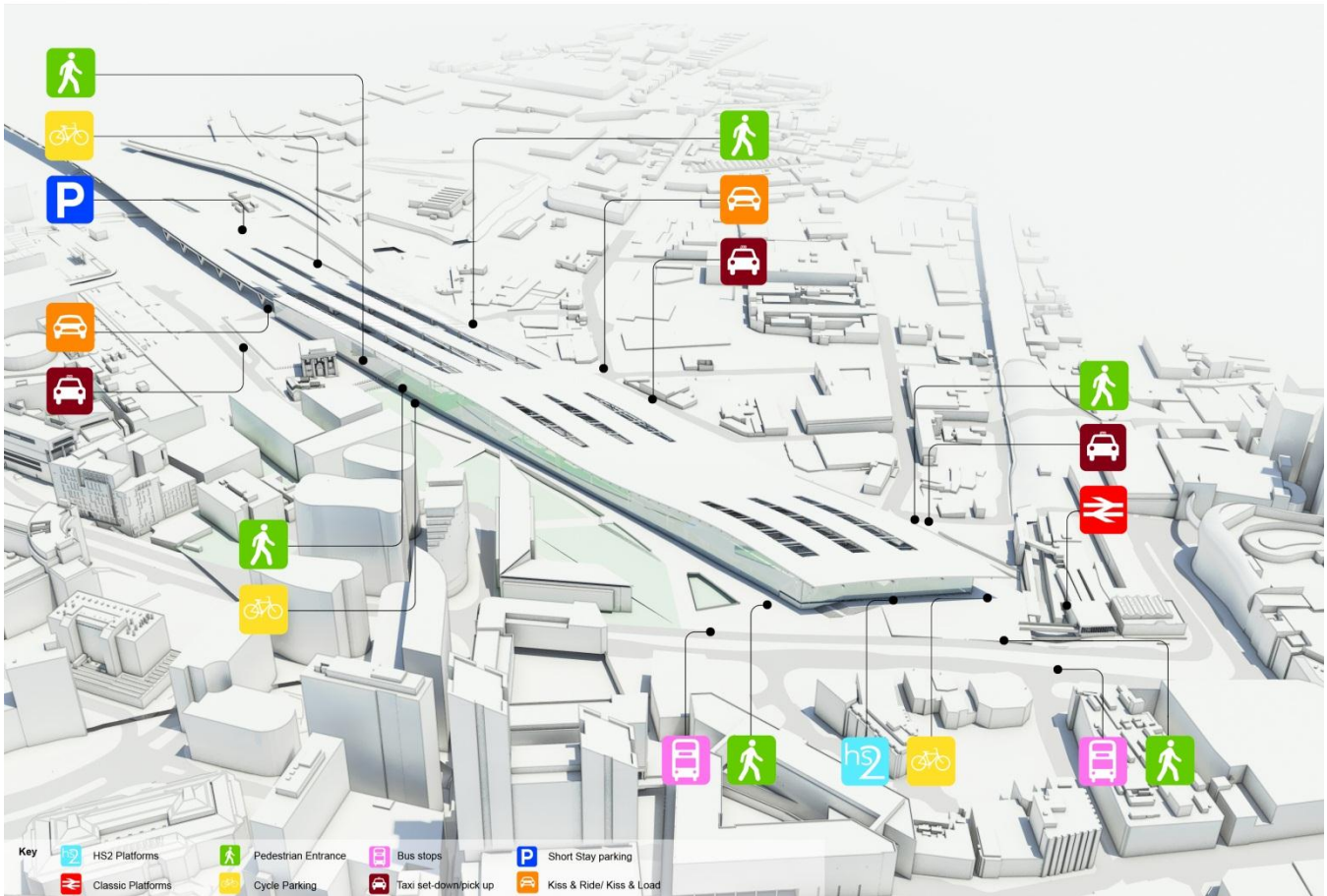


Figure 8-34: Curzon Street station intermodal interchange visualisation

## Intermodal Transport Connections - Curzon Street Station



8.6.318 The footprint of the proposed Washwood Heath Depot, proposed rail corridor and, in particular, the proposed Curzon Street station, will require a number of highway links and pedestrian footpaths to be closed, or have their current function altered. The tables below summarise the permanent highway diversions and permanent footpath diversions required to accommodate the Proposed Scheme.

Table 8-383: Road closures and diversions

Name	Location	Expected diversion routes	Diversion length (approx.)	Reason for diversion and diversion route
Viaduct Street	City Centre viaduct	Divert via Vauxhall Road.	700m	Permanent diversion for construction of new viaduct.
Fazeley Street (west of New Canal Street), B4114 Park Street, New Canal Street (NB), Banbury Street, Andover Street (north end), Freeman Street, Seymour Street, Bartholomew Street.	Streets surrounding and directly affected by the proposed Curzon Street station	Divert via Jennens Road, Moor Street Queensway, B4100 Digbeth, A4540 or A38	n/a	Construction and operation of new Curzon Street station.

## 8.6.319 The table below outlines permanent footpath diversions.

Table 8-384: Footpath, cycleway and bridleway closures and diversions

PRoW/ pedestrian route	Location	Diversion length (approx.)	Reason for diversion and diversion route
Alstom Site Access Road	South of A47 Heartlands Parkway	Permanent closure.	Washwood Heath Depot, bridge to be demolished as access no longer required.
Common Lane	North of Warren Road	Permanent closure of north portion of Common Lane.	Washwood Heath Depot (construction and operation).
Common Lane to Bromford Island public footpath	Public footpath from northern end of Common Lane to Bromford Island, around the perimeter of former LDV works.	Permanent closure	Washwood Heath Depot (construction and operation). Note the route is currently gated and locked at the Common Lane and is not currently in use.
Viaduct Street	City Centre viaduct	700m	Construction of new viaduct. Permanent diversion via Vauxhall Street.
Miles Druce Way	City Centre viaduct	Access to Curzon Gateway building permanently removed.	Construction of new viaduct, including demolition of Curzon Gateway building.
Banbury Street	East of the Banbury Street/New Canal Street Junction	20m	Banbury Street to be closed as through route. Pedestrians diverted along New Canal Street
Banbury Street	West of Banbury Street/New Canal Street Junction	130m	Banbury Street to be closed as through route. Pedestrians diverted along New Canal Street
Bartholomew Street	North of Bartholomew Street/Fazeley Street Junction	500m	Bartholomew Street to be closed. Pedestrians diverted along New Canal Street.
Fazeley Street	West of Bartholomew Street/Fazeley Street Junction	900m	Fazeley Street to be closed. Pedestrians diverted via Moor St Queensway and New Canal Street
Park Street	South of the Fazeley Street/Park Street Junction	680m	Park Street closed and pedestrians diverted along Moor Street Queensway.
Footpath link	Park area between Fazeley Street and Park Street Eastbound/Westbound	530m	Park area (Park Street Gardens) removed. Pedestrians diverted along Park Street, Meriden Street, New Canal Street
Footpath link	Informal trodden path between Banbury Street and Bartholomew Street	240m	Grass area to be removed. Pedestrians diverted along Moor Street Queensway, Masshouse Lane, Curzon Park and New Canal Street.

## Operation forecast trip assumptions

### Trip generation

- 8.6.320 The Washwood Heath Maintenance Depot (RSMD) will also generate trips on completion of the scheme. There will be 385 staff located at the RSMD and trips associated with the RSMD will comprise of maintenance and cleaning staff, support staff and train crew. Trips associated with the RSMD are expected to be on a shift basis with the majority of demand occurring outside network peak periods. Table 8-385 summarises the forecast trip generation associated with the RSMD.

Table 8-385: Forecast staff movements associated with the RSMD

Hour beginning	Maintenance		Cleaning		Support		Train crew		Total	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
01:00	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	17	0	17	0
04:00	40	0	30	0	11	0	18	0	99	0
05:00	0	50	0	62	0	11	0	0	0	123
06:00	0	0	0	0	0	0	0	0	0	0
07:00	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	30	0	0	0	30	0
09:00	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0
13:00	40	40	30	30	11	11	17	17	98	98
14:00	0	0	0	0	0	0	18	18	18	18
15:00	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	30	0	0	0	30
18:00	0	0	0	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0	0	0	0
21:00	50	0	62	0	11	0	0	0	123	0
22:00	0	40	0	30	0	11	0	0	0	81
23:00	0	0	0	0	0	0	0	17	0	17
00:00	0	0	0	0	0	0	0	18	0	18
Total	130	130	122	122	63	63	70	70	385	385

### Mode share

- 8.6.321 For highway trips, the PLANET forecasts needed to be converted from person trips into vehicular trips. Vehicle occupancy rates were therefore derived from the observed Birmingham New Street station survey data as summarised in Table 8-386.



Table 8-386: Highway sub mode observed vehicle occupancies

Time Period	Boarders			Alighters		
	Taxi	Kiss and ride	Car Park	Taxi	Kiss and ride	Car Park
AM peak hour (08:00-09:00)	1.16	1.21	1.15	1.29	1.20	1.20
PM peak hour (17:00-18:00)	1.29	1.20	1.20	1.16	1.21	1.15

- 8.6.322 The modal split for the RSMD has been based on the 2001 Census Journey to Work data for the daytime population in three Super Output Areas in the Hodge Hill Ward which encompass the whole of the proposed RSMD site. Table 8-387 summarises this data.

Table 8-387: Journey to work data from 2001 Census – Output Areas in the Hodge Hill Ward

Mode	Train	Bus/coach	Taxi	Car driver	Car passenger	Motorcycle	Bicycle	On foot
Split	2.1%	12.0%	0.2%	73.4%	5.2%	1.0%	2.4%	3.6%

- 8.6.323 The above mode share has been adopted for daytime working patterns. Due to the shift working nature of the maintenance depot, journeys by public transport (and walking and cycling due to unsociable hours acting as deterrents to these modes) may not be feasible at certain times of the day. As a result, an adjusted modal split summarised in Table 8-388 has been applied to these journeys.

Table 8-388: Journey to work data adjusted to reflect shift pattern

Mode	Car driver	Car passenger	Motorcycle
Split	92.2%	6.6%	1.2%

- 8.6.324 In addition to staff trips, the RSMD will also attract some 20 delivery vehicles per day with no more than two arrivals and two departures in an hour.

### *Distribution*

- 8.6.325 Highway trips generated by Curzon Street station were distributed on to the highway network based on PLANET data for car trips (cars parking and kiss and ride) and based on an analysis of current trip distribution of trips to/from New Street for trips accessing the station by taxi, kiss and ride and parking in a car park. Individual distributions for taxi and kiss and ride/parked vehicle trips have been derived. The main corridors are summarised in Table 8-389 and Table 8-390.

Table 8-389: Forecast Curzon Street station trip distribution – highway trips; kiss and ride/cars parking

Study area entry point	2026		2041	
	Boarders	Alighters	Boarders	Alighters
A456 Hagley Road	20%	20%	20%	20%
A41 Soho Hill	15%	15%	15%	15%
A38M To M6	13%	13%	13%	13%
A38 Bristol Road	11%	10%	12%	12%
A441 Pershore Road	11%	10%	11%	10%
A45 Small Heath Hwy	8%	8%	8%	8%
A34 High St/New Town Row	8%	8%	9%	9%

Table 8-390: Forecast Curzon Street station trip distribution – highway trips; taxi

Study area entry point	2026		2041	
	Boarders	Alighters	Boarders	Alighters
A38M Dartmouth Circus (A38M)	14%	14%	14%	14%
A38 Bristol Road	13%	13%	13%	13%
A4540 Belgrave Interchange	12%	12%	12%	12%
A435 Haden Way/A4167 Belgrave Road	11%	11%	11%	11%
A456 Hagley Road	11%	11%	11%	11%
A4540/A456 Broad Street Roundabout (B424)	10%	10%	10%	10%
A4540/A34 New Town Row/High Street	8%	8%	8%	8%
A4540/A457 Spring Hill/Dudley Road	7%	7%	7%	7%

8.6.326 Employee trip distribution for the RSMD has been based on 2001 Census Journey to Work data for the Output Areas for Washwood Heath and is summarised in Table 8-391.

Table 8-391: Forecast RSMD employee distribution

Origin zones	% split
Bromford Road	21%
Bromford Lane south	17%
A47W Heartlands Parkway	5%
A47W/A38W	7%
A38W Tyburn Road	20%
North of Tyburn Road (Bromford Lane north)	6%
A38E Tyburn Road	14%
Other	13%
Total	100%



- 8.6.327 Delivery vehicles are assumed to arrive and depart via the strategic network due to the specialist nature of the operations.

### *Changes in demand 2026 and 2041*

- 8.6.328 The table below summarises the forecast trip generation associated with the Washwood Heath Depot, for all modes. The forecast trip generation is based on the depot activities in 2041 and, for robustness, the same trip generation has been assumed for 2026. However, in 2026 the trip generation is expected to be less than presented below. The distribution of both vehicular and person trips are also expected to remain consistent over this period.

Table 8-392: Washwood Heath Depot person trip generation summary (2026 and 2041)

Time Period	Car/LGV		Rail		Bus		Walk		Cycle		Total	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep
AM Peak (08:00-09:00)	35	0	1	0	5	0	2	0	1	0	44	0
PM Peak (17:00-18:00)	0	32	0	1	0	5	0	1	0	1	0	40
Daily (weekday)	342	342	7	7	40	40	12	12	8	8	410	410

Table 8-393: Washwood Heath Depot vehicle trip generation summary (2026 and 2041)

Time Period	Cars/LGVs		Deliveries		Total	
	Arrival	Departure	Arrival	Departure	Arrival	Departure
AM Peak (08:00-09:00)	33	0	2	2	35	2
PM Peak (17:00-18:00)	0	30	2	2	2	32
Daily (weekday)	319	319	20	20	339	339

- 8.6.329 At Curzon Street station, PLANET forecasts estimate that the demand for travel on the Proposed Scheme route will grow by 62% between 2026 and 2041. Whilst demand at the Curzon Street station is expected to grow, both the modal split and the distribution of passengers arriving at and departing from the station are expected to remain consistent. The following tables summarise the number of peak hour trips, by access mode, for the Curzon Street station in 2026 and 2041, and are based on the forecasting methodology set out in Section 2. It should be noted that trips associated with 'Car Park' in Table 8-395 and Table 8-397 are long stay parking trips which will park in nearby city centre car parks, as no provision for long stay parking at Curzon Street station will be made as part of the Proposed Scheme.

Table 8-394: 2026 Phase One Curzon Street station peak hour boarders and alighters by public transport sub-mode (person trips)

Time Period	Boarders					Alighters				
	Bus	Walk	Cycle	Local Rail	Total	Bus	Walk	Cycle	Local Rail	Total
AM Peak (08:00-09:00)	297	283	13	66	659	39	182	0	39	260
PM Peak (17:00-18:00)	16	284	0	19	319	237	297	7	135	676

Table 8-395: 2026 Phase One Curzon Street station peak hour boarders and alighters by highway sub-mode (vehicle trips)

Time Period	Boarders			Alighters		
	Taxi	Kiss and Ride	Car Park	Taxi	Kiss and Ride	Car Park
AM Peak (08:00-09:00)	38	37	51	34	2	2
PM Peak (17:00-18:00)	45	9	1	43	26	38

Table 8-396: 2041 Phase Two Curzon Street station peak hour boarders and alighters by public transport sub-mode (person trips)

Time Period	Boarders					Alighters				
	Bus	Walk	Cycle	Local Rail	Total	Bus	Walk	Cycle	Local Rail	Total
AM Peak (08:00-09:00)	637	608	28	141	1,414	84	394	0	84	562
PM Peak (17:00-18:00)	34	610	0	41	686	511	642	15	292	1,460

Table 8-397: 2041 Phase Two Curzon Street station peak hour boarders and alighters by highway sub-mode (vehicle trips)

Time Period	Boarders			Alighters		
	Taxi	Kiss and Ride	Car Park	Taxi	Kiss and Ride	Car Park
AM Peak (08:00-09:00)	69	67	94	61	4	4
PM Peak (17:00-18:00)	83	17	2	78	47	69

## Washwood Heath to Curzon Street Station (CFA26) Proposed Scheme assessment of operation impacts

### Key operation transport issues

8.6.330 As part of its design, the Proposed Scheme includes the following measures to reduce the impacts on transport users in the Washwood Heath to Curzon Street area:

- the proposed Curzon Street station has been designed to include sufficient concourse and platform space to accommodate passenger growth to 2041 and beyond;
- the design of Curzon Street station includes the following transport facilities which will be sufficient to accommodate the forecast levels of use, as shown on Volume 5: Map TR-01-005:
  - dedicated taxi facilities;
  - dedicated pick-up and drop-off facilities, comprising a 'kiss and ride' drop-off area and short stay car parking. There is no long stay car parking included as part of the station design, as it is anticipated that the majority of rail passengers will access the station via drop off (taxi and kiss and ride), public transport or walking. Any passengers that do want to park will be able to use the existing Birmingham city centre car parks located close to the station;

- servicing and delivery facilities ;
- pedestrian and cycle facilities; and
- pedestrian link to Moor Street station.
- the realignment of New Canal Street and its conversion to one-way operation for traffic but maintaining all movement pedestrian and cycle access;
- upgraded highway capacity including improvements to the Curzon Street/Cardigan Street junction, Curzon Circle and Garrison Circus;
- provision of replacement access to Birmingham Gun Barrel Proof House, which is currently accessed from Banbury Street;
- a replacement overbridge at Aston Church Road;
- a replacement of the B4114 Saltley Viaduct;
- a new bridge over the Stechford to Aston line - the Washwood Heath rail overbridge;
- a new viaduct over the Birmingham and Derby line, Birmingham and Bushbury line, A4540 Lawley Middleway and Digbeth Branch Canal; and
- Washwood Heath depot that will operate on a 24hour shift basis with changeover times unlikely to coincide with the highway peak hours.

8.6.331 A framework travel plan will set out how travel plans will be used to mitigate the impacts of traffic and transport movements associated with the maintenance and operation of the Proposed Scheme. In relation to this area, operational station and depot travel plans will be used to mitigate travel impacts from both the proposed Curzon Street station and the Washwood Heath depot, and also to mitigate impacts associated with the station at Birmingham Interchange (in CFA24).

8.6.332 In terms of the transport network in the Washwood Heath to Curzon Street area, the Proposed Scheme will also result in:

- an increase in rail capacity between London and Birmingham;
- reduced rail journey times between London and Birmingham;
- passenger demands to and from the proposed Curzon Street station;
- road closures and associated diversions around the proposed Curzon Street station, in particular the closure of the B4114 Park Street;
- changes to street patterns and associated re-routeing around the proposed Curzon Street station, in particular the change from two-way to one-way southbound operation on New Canal Street;
- staff movements associated with the operation of the Washwood Heath depot;

- reduction in parking and loading at various locations along the route of the Proposed Scheme; and
- roadside footway and footpath diversions/realignments, particularly in the vicinity of the proposed Curzon Street station.

8.6.333 In addition, occasional traffic may access areas of the Proposed Scheme for maintenance purposes, but such infrequent vehicle movements are anticipated to be very low and, therefore, will have a negligible impact on the strategic and local road networks.

8.6.334 The proposed Curzon Street station will also displace several committed developments including Curzon Park and the Eastside City Park Gate scheme, which would potentially generate more traffic in the peak hours compared to the Proposed Scheme. Further detail regarding these schemes is provided earlier in this report.

8.6.335 The following sections consider the transport impacts of the above in the area.

#### *Local land uses*

8.6.336 A number of existing businesses and land uses will be displaced to facilitate the Proposed Scheme.

8.6.337 The Proposed Scheme will result in the displacement of the existing businesses currently located on the site of the proposed Washwood Heath Depot, including UK Mail, in order to accommodate the proposed depot.

8.6.338 Curzon Street station will displace existing surface level car parks, the Curzon Gateway student accommodation and existing self-storage business premises. In addition, the Curzon Street station will displace several committed developments including Curzon Park and the Eastside City Park Gate Scheme, which would potentially generate more traffic in the peak hours compared to the Proposed Scheme. The BCCM model takes account of these land use changes.

8.6.339 Additionally, eight business premises, located between Saltley and the A4540 will be affected through the loss of facilities, including access, service yards and car parking.

8.6.340 While there is an impact due to these changes of land use, the implications in terms of transport are fully covered in the following sections of this chapter.

### *Strategic and local road network traffic flows*

- 8.6.341 The Proposed Scheme will include the reconfiguration and, in some instances, closure of local highway links in the vicinity of the Curzon Street station. The changes, which include the closure of the B4114 Park Street and the conversion of New Canal Street to one-way southbound only, will result in vehicle trips diverting to other routes, and primarily the A4540 and B4100 Moor Street Queensway.
- 8.6.342 To assess the impact of the Proposed Scheme in the Birmingham city centre area, outputs from the BCCM model have been used to quantify differences in flow and v/c (volume to capacity ratio), by link. The criteria used in determining impacts across the city centre road network are set out earlier in this section of the report.
- 8.6.343 With regard to the impacts associated with the Washwood Heath Depot, this is located outside of the BCCM model area and has been assessed based on changes in traffic flows.
- 8.6.344 The Proposed Scheme will require a number of local roads to be reconfigured or closed, which fall within the footprint of the Curzon Street station. As referenced in Table 8-383, closures include Park Street, Fazeley Street (west of Bartholomew Street) and Andover Street and Banbury Street (to through traffic). New Canal Street will also be reconfigured, to allow southbound traffic only. These changes will affect the patterns of flows travelling through and around the city centre area, with local links, such as Moor Street Queensway, likely to form a key diversion route.

### **Overall network performance 2026**

- 8.6.345 The tables below summarise the overall network statistics for the BCCM model for 2026, and provide a comparison between the future baseline and 2026 with the Proposed Scheme.
- 8.6.346 In the 'with the Proposed Scheme' scenario the BCCM includes the changes to the local highway network required to accommodate the Proposed Scheme, the removal of committed developments on Curzon Street (Curzon Park and City Park Gate), and traffic associated with the Proposed Scheme.

Table 8-398: Network performance statistics, 2026 future baseline and with the Proposed Scheme

Statistics	AM (08:00-09:00)		PM (17:00-18:00)	
	2026 future baseline	2026 with the Proposed Scheme	2026 future baseline	2026 with the Proposed Scheme
Transient Queues (PCU.Hrs)	1286.0	1272.1	1270.7	1280.7
Overcapacity Queues (PCU.Hrs)	1296.3	1325.9	648.3	592.1
Cruise Time (PCU.Hrs)	2846.9	2853.5	2804.0	2812.2

Statistics	AM (08:00-09:00)		PM (17:00-18:00)	
	2026 future baseline	2026 with the Proposed Scheme	2026 future baseline	2026 with the Proposed Scheme
Total Travel Time (PCU.Hrs)	5429.2	5451.5	4722.9	4685.0
Travel Distance (PCU.Kms)	124,625.0	124,883.9	121,661.9	121,786.2
Average Speed (KPH)	23.0	22.9	25.8	26.0
Total Trips Loaded	44,252	44,061	43,281	43,053

8.6.347 The above table shows that in 2026, in both the AM (08:00-09:00) and PM (17:00-18:00) peak hours, the change in the overall BCCM model performance is forecast to be minimal, and in all scenarios with the Proposed Scheme there is a net reduction in the total number of trips in the model compared to the baseline. This is due to forecast traffic associated with the Proposed Scheme being less than the committed developments that the Proposed Scheme replaces.

8.6.348 In the AM (08:00-09:00) peak the Proposed Scheme will result in increases in queuing and delays in the network, although this increase is minimal in 2026. This increase in queues (particularly over capacity queues) and delays, despite the reduction in total trips, suggests that the changes to the road network as part of the Proposed Scheme results in additional congestion on other routes. In the PM (17:00-18:00) peak queuing and delays in the network are improved with the Proposed Scheme.

8.6.349 Figure 8-35 and Figure 8-36 show the change in actual flow across the city centre during the operational scenario in 2026, for the AM (08:00-09:00) and PM (17:00-18:00) peaks respectively. The bandwidths represent the difference in flow in PCU between the 2026 future baseline with Proposed Scheme and the future baseline without the Proposed Scheme. Red represents an increase in trips during operation whilst green is a decrease.



Figure 8-35: 2026 future baseline with Proposed Scheme (-) future baseline scenario (AM peak)

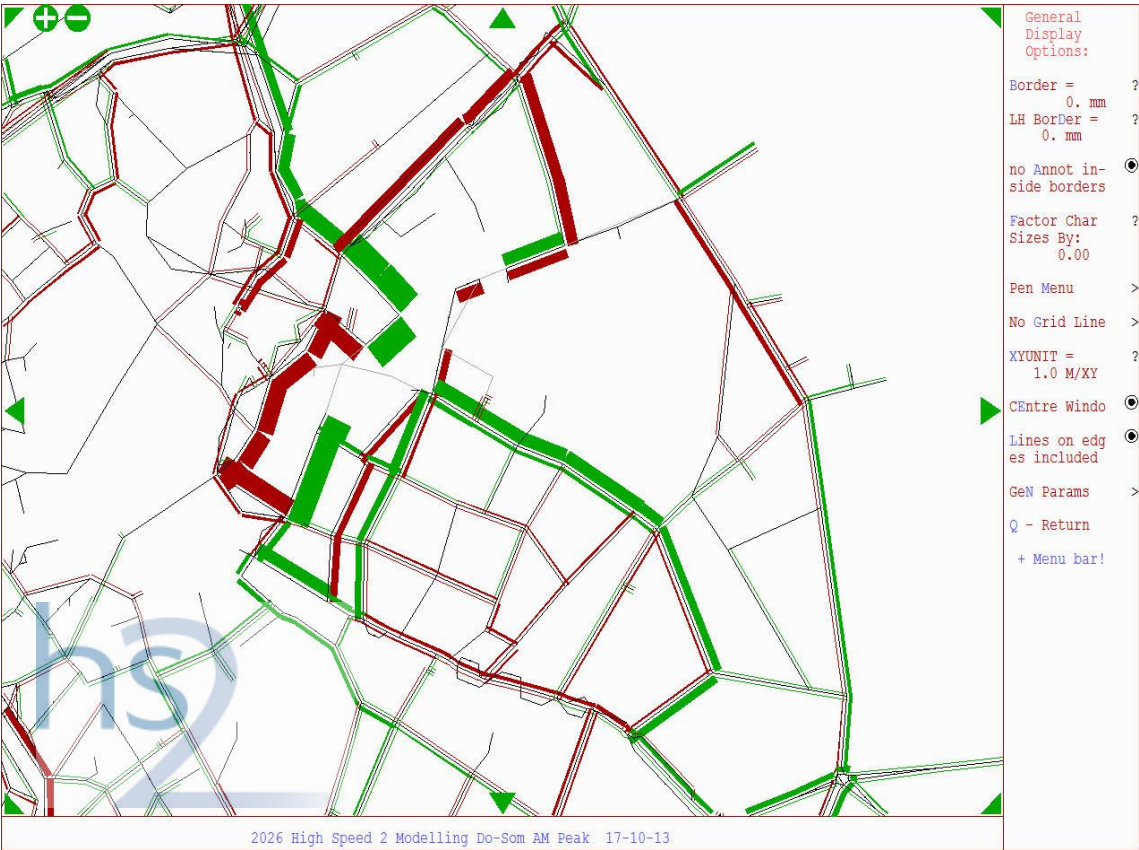
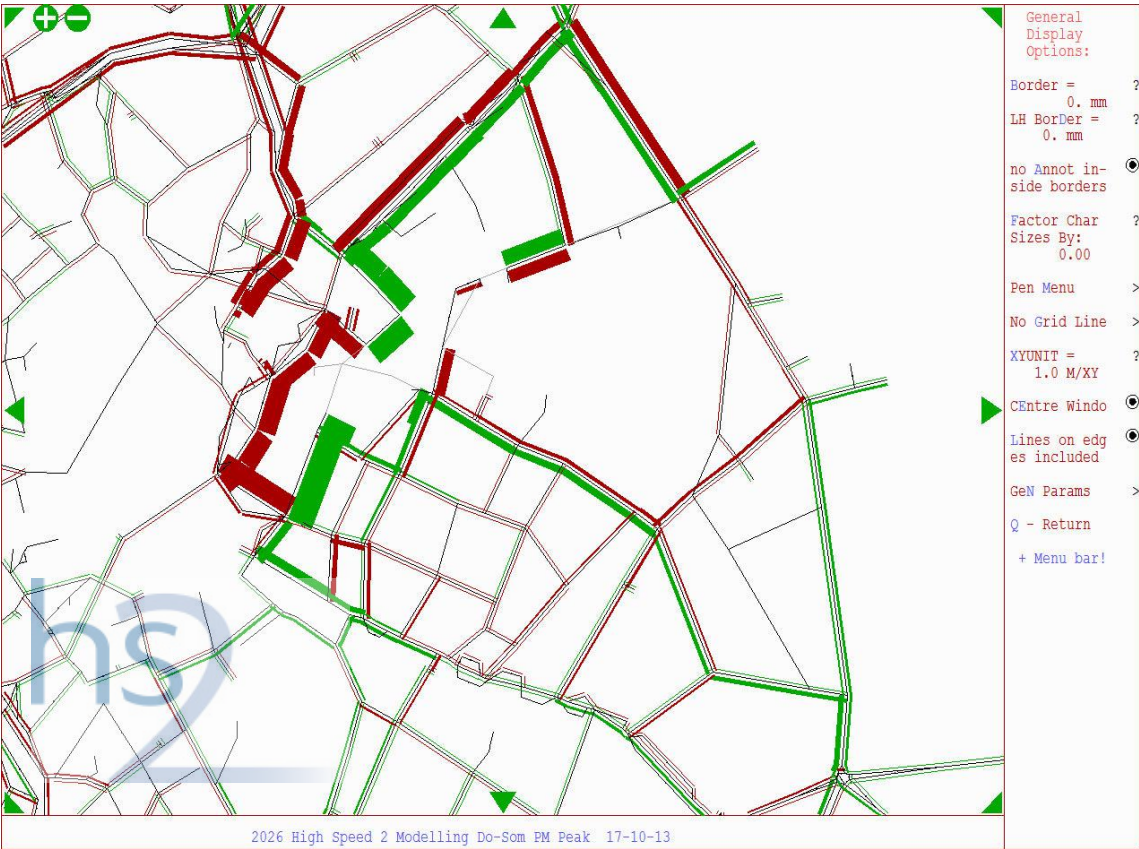


Figure 8-36: 2026 future baseline with Proposed Scheme (-) future baseline scenario (PM peak)



- 8.6.350 The following section reviews in detail the impacts across the strategic and local road network associated with the changes in flow arising from delivery of the Proposed Scheme.

**Strategic road network - links 2026**

- 8.6.351 The following tables summarise the 2026 link assessments conducted for the strategic road network that will serve Curzon Street station and Washwood Heath Depot.

*City centre*

- 8.6.352 The following tables summarise the 2026 link assessments conducted for the strategic road network in the city centre.
- 8.6.353 Operational flows have been derived by taking outputs from the BCCM model. The model was run for 2026, and includes road closures and changes required to accommodate the Proposed Scheme, and traffic associated with the operation of the Proposed Scheme in 2026.



Table 8-399: City centre strategic road network 2026 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
A47 Nechells Parkway between Melvina Road and A4540	EB	863	106	838	104	-2.9%	-1.9%	27%	27%
	WB	617	127	603	125	-2.3%	-1.6%	29%	28%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	2100	183	2110	183	0.5%	0.1%	90%	91%
	SB	4962	244	4916	244	-0.9%	-0.1%	52%	52%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	2944	260	2958	260	0.5%	0.1%	39%	39%
	SB	4864	265	4853	278	-0.2%	4.9%	63%	63%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1246	116	1364	120	9.5%	3.4%	74%	80%
	WB	1709	114	1741	108	1.9%	-5.2%	48%	49%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1560	162	1536	150	-1.5%	-7.3%	83%	81%
	SB	1885	192	1885	175	0.0%	-8.9%	84%	83%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1348	133	1304	120	-3.3%	-9.8%	57%	55%
	SB	2076	207	2061	190	-0.7%	-8.2%	56%	55%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1724	190	1727	186	0.2%	-2.1%	31%	31%
	SB	2092	219	2146	215	2.6%	-1.9%	103%	106%
A4540 Lawley Middleway	NB	1838	153	1963	165	6.8%	7.9%	96%	103%

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
between Curzon Circle and Garrison Circus	SB	2077	245	2106	231	1.4%	-5.7%	65%	65%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1530	101	1548	103	1.2%	2.0%	45%	46%
	SB	1863	186	1808	167	-3.0%	-10.1%	48%	46%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1653	93	1717	100	3.9%	7.5%	54%	55%
	SB	1724	221	1610	200	-6.6%	-9.5%	68%	65%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1547	100	1617	113	4.6%	13.0%	99%	100%
	SWB	1304	138	1324	137	1.5%	-0.7%	36%	37%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1186	139	1182	139	-0.3%	0.0%	37%	37%
	SB	1301	141	1295	137	-0.5%	-2.8%	115%	113%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	1075	132	1054	132	-2.0%	0.0%	80%	78%
	SB	1009	228	998	227	-1.1%	-0.4%	95%	94%

Table 8-400: City centre strategic road network 2026 future baseline and with the Proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
A47 Nechells Parkway between Melvina Road and A4540	EB	628	46	630	46	0.3%	0.0%	19%	19%
	WB	719	50	675	48	-6.1%	-4.0%	29%	28%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	3291	63	3262	63	-0.9%	0.2%	133%	132%
	SB	2919	150	2907	149	-0.4%	-0.7%	31%	31%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	3995	94	3886	92	-2.7%	-1.9%	50%	48%
	SB	3556	176	3600	176	1.2%	0.0%	46%	47%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1554	36	1567	36	0.9%	0.0%	86%	87%
	WB	1232	24	1241	27	0.7%	12.2%	31%	32%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1760	21	1774	23	0.8%	9.9%	107%	104%
	SB	1564	35	1447	33	-7.5%	-5.8%	63%	58%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1517	20	1444	20	-4.8%	0.0%	55%	52%
	SB	1657	39	1520	36	-8.3%	-7.5%	42%	38%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1655	49	1480	47	-10.6%	-4.1%	28%	25%
	SB	1592	40	1852	50	16.3%	25.1%	81%	95%
A4540 Lawley Middleway	NB	1864	38	1904	41	2.1%	7.7%	100%	103%

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
between Curzon Circle and Garrison Circus	SB	1772	41	1803	41	1.8%	0.4%	50%	51%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1138	18	1099	19	-3.4%	5.7%	32%	31%
	SB	1607	31	1560	31	-2.9%	0.0%	38%	37%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1543	27	1467	27	-4.9%	-0.2%	48%	46%
	SB	1814	59	1838	61	1.3%	3.4%	78%	78%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1660	29	1610	28	-3.0%	-3.6%	92%	88%
	SWB	1790	47	1835	48	2.5%	2.1%	46%	48%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1267	53	1242	53	-2.0%	0.0%	37%	35%
	SB	1472	38	1466	37	-0.4%	-2.5%	121%	120%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	745	79	728	79	-2.3%	0.0%	65%	65%
	SB	1194	62	1182	62	-1.0%	0.1%	97%	96%

- 8.6.354 Compared to the 2026 future baseline, the tables above indicate that traffic flows on the majority of strategic road network links will reduce or experience small increases in flow with the Proposed Scheme. The only link forecast to experience an increase in flows greater than 10% is A4540 Lawley Middleway (between Ashted Circus and Curzon Circle, southbound).
- 8.6.355 The tables also show that increases in traffic result in the volume to capacity ratio being greater than 85% and increasing by more than 5% relative to the 2026 future baseline on A4540 Lawley Middleway (between Garrison Circus and Curzon Circle, northbound, and between Ashted Circus and Curzon Circle, southbound).
- 8.6.356 Based on the results of the link assessment, the A4540 Lawley Middleway/Curzon Street junction (Curzon Circle) has been identified for further detailed investigation. Furthermore, due to the potential interaction of Curzon Circle with Ashted Circus (located to the north of Curzon Circle) and Garrison Circus (located to the south of Curzon Circle), the operation of these junctions has also been considered further.

*Washwood Heath*

- 8.6.357 The following tables summarise the 2026 link assessments conducted for the strategic road network in the Washwood Heath area.
- 8.6.358 Operational flows have been derived from traffic surveys and factored using TEMPRO growth factors to 2026. Traffic in this area associated with the Curzon Street station and Washwood Heath Depot has been added to the flows, and traffic associated with existing land uses at the depot site has been removed from the network.

Table 8-401: Washwood Heath strategic road network 2026 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	2051	80	2009	81	-2.04%	0.90%	64%	63%
	SB	1557	65	1470	60	-5.6%	-6.8%	49%	46%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	821	123	812	122	-1.1%	-0.9%	23%	23%
	WB	1904	212	1890	212	-0.8%	-0.1%	53%	52%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	774	173	765	172	-1.1%	-0.7%	22%	21%
	WB	1771	198	1756	197	-0.8%	-0.1%	49%	49%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	574	146	568	145	-1.1%	-0.7%	16%	16%
	SB	1410	162	1398	162	-0.8%	-0.1%	39%	39%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	1217	123	1214	122	-0.3%	-0.8%	38%	38%
	SB	2126	139	2118	138	-0.4%	-0.2%	66%	66%

Table 8-402: Washwood Heath strategic road network 2026 future baseline and with the Proposed Scheme traffic– PM (17:00-18:00) peak

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	1879	46	1815	44	-3.4%	-4.0%	59%	57%
	SB	2011	61	1968	55	-2.2%	-9.4%	63%	61%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	1194	106	1185	105	-0.8%	-1.7%	33%	33%
	WB	969	104	956	103	-1.4%	-1.2%	27%	27%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	1502	103	1493	101	-0.6%	-1.7%	42%	41%
	WB	930	92	917	91	-1.4%	-1.4%	26%	25%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	1249	83	1242	82	-0.6%	-1.9%	35%	35%
	SB	610	58	601	57	-1.5%	-1.5%	17%	17%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	2012	70	2009	69	-0.2%	-2.3%	63%	63%
	SB	1356	69	1349	68	-0.5%	-1.3%	42%	42%

- 8.6.359 Compared to the 2026 future baseline, the tables above indicate that all strategic road network links in the Washwood Heath area will experience small reductions in traffic flows with the Proposed Scheme. The decrease in flows is due to the removal of traffic associated with the existing use of the Washwood Heath Depot site, which includes UK Mail. The traffic associated with the proposed depot will predominantly fall outside of the AM (08:00-09:00) and PM (17:00-18:00) peak hours and therefore will have no impact on the strategic road network during the peak hours.
- 8.6.360 Therefore, based on the results of the link assessment for 2026, no junctions on the strategic road network in the Washwood Heath area require further assessment.

### Local road network - links 2026

- 8.6.361 The following tables summarise the 2026 assessments conducted for the local road network links that will serve the Curzon Street station and the Washwood Heath Depot site.

#### *City centre*

- 8.6.362 The following tables summarise the 2026 assessments conducted for the local road network in the city centre area.
- 8.6.363 Operational flows have been derived by taking outputs from the BCCM model. The model was run for 2026, and includes road closures and changes required to accommodate the Proposed Scheme, and traffic associated with the operation of the Proposed Scheme in 2026.

Table 8-403: City centre local road network 2026 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	0	16	433	15	-17.7%	-6.3%	43%	36%
	WB	640	78	647	78	1.1%	0.0%	87%	82%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	236	41	320	63	35.6%	53.7%	12%	18%
	WB	832	64	880	82	5.8%	28.2%	25%	27%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	315	56	595	80	88.9%	42.9%	11%	20%
	WB	236	63	219	67	-7.2%	6.4%	107%	103%



Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
Cardigan Street between B4114 Jennens Road and Curzon Street	NB	13	1	7	1	-46.2%	0.1%	1%	0%
	SB	100	9	423	27	323.0%	199.9%	21%	100%
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	302	18	202	21	-33.1%	16.7%	50%	30%
	WB	362	23	419	26	15.7%	13.2%	20%	25%
Curzon Street between Cardigan Street and New Canal Street	EB	321	21	19	0	-94.1%	-100.0%	27%	1%
	WB	446	42	681	52	52.7%	23.8%	5%	42%
New Canal Street between Curzon Street and Fazeley Street	NB	338	21	0	0	0.0%	0.0%	20%	0%
	SB	465	42	645	52	38.7%	23.8%	28%	39%
Banbury Street	EB	84	4	0	0	-100.0%	-100.0%	5%	0%
	WB	27	3	0	0	-100.0%	-100.0%	6%	0%
Andover Street	NB	21	0	28	0	33.3%	0.0%	4%	4%
	SB	51	0	64	0	25.5%	0.0%	6%	4%
Fazeley Street between Andover Street and New Canal Street	EB	542	52	186	13	-65.7%	-75.0%	33%	14%
	WB	131	11	5	0	-96.2%	-100.0%	22%	4%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	480	43	0	0	-100.0%	-100.0%	54%	0%
	WB	183	17	168	13	-8.2%	-23.5%	10%	15%
New Bartholomew Street	SB	28	1	168	13	503.7%	974.6%	2%	13%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	83	10	19	9	-77.2%	-7.0%	6%	1%
	WB	53	5	56	1	5.2%	-79.3%	4%	4%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	103	6	6	0	-94.2%	-100.0%	16%	1%
	WB	12	3	18	4	50.0%	33.3%	1%	1%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	85	10	114	8	34.6%	-17.3%	7%	9%
	SB	132	29	4	0	-97.0%	-100.0%	10%	0%
B4100 between Meriden Street and Oxford Street	EB	345	110	414	108	20.0%	-1.8%	17%	19%
	WB	483	93	504	96	4.3%	3.3%	11%	11%
B4100 between Park Street and Meriden Street	EB	1004	178	680	156	-32.3%	-12.4%	21%	16%
	WB	1259	227	1142	229	-9.3%	0.9%	45%	42%

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1113	103	0	0	-100.0%	-100.0%	36%	0%
B4100 Park Street between Moor Street and Moat Lane	NB	890	209	940	215	5.6%	2.9%	66%	71%
	SB	667	160	509	142	-23.7%	-11.3%	44%	36%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	855	153	873	164	2.1%	7.2%	58%	59%
Masshouse Lane	EB	196	106	604	170	208.2%	60.4%	34%	76%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	760	132	769	135	1.2%	2.3%	94%	95%
	SB	115	99	513	154	346.1%	55.6%	28%	71%
B4100 Moor Street	EB	91	77	500	142	449.5%	84.4%	76%	96%
	WB	762	79	812	85	6.6%	7.6%	47%	50%

Table 8-404: City centre local road network 2026 future baseline and with the Proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	799	15	656	14	-17.9%	-7.0%	65%	54%
	WB	539	11	549	11	1.9%	-0.1%	82%	63%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	480	19	670	23	39.6%	20.9%	23%	33%
	WB	592	44	331	35	-44.1%	-20.5%	18%	11%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	227	36	553	41	143.6%	13.8%	8%	17%
	WB	603	60	282	50	-53.2%	-16.7%	102%	53%
Cardigan Street between B4114 Jennens Road and Curzon Street	NB	14	0	8	0	-42.9%	0.0%	1%	0%
	SB	3	0	185	2	6066.7%	0.0%	1%	47%

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	470	3	245	17	-47.9%	465.3%	88%	30%
	WB	232	3	404	10	74.1%	234.8%	13%	23%
Curzon Street between Cardigan Street and New Canal Street	EB	436	4	19	0	-95.6%	-100.0%	39%	3%
	WB	183	4	526	13	187.4%	224.2%	3%	37%
New Canal Street between Curzon Street and Fazeley Street	NB	484	4	0	0	0.0%	0.0%	27%	0%
	SB	271	4	595	13	119.6%	223.4%	15%	34%
Banbury Street	EB	11	1	0	0	-100.0%	-100.0%	1%	0%
	WB	60	1	0	0	-100.0%	-100.0%	10%	0%
Andover Street	NB	169	0	177	0	4.7%	0.0%	23%	25%
	SB	165	0	180	0	9.1%	0.0%	21%	11%
Fazeley Street between Andover Street and New Canal Street	EB	251	4	282	6	12.4%	50.5%	15%	20%
	WB	278	4	0	0	-100.0%	-100.0%	23%	0%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	241	3	0	0	-100.0%	-100.0%	27%	0%
	WB	194	3	46	0	-76.3%	-100.0%	10%	4%
New Bartholomew Street	SB	35	1	46	0	31.1%	-100.0%	3%	4%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	76	1	16	1	-79.0%	-17.4%	6%	1%
	WB	85	2	124	1	46.4%	-58.7%	7%	10%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	96	4	2	0	-97.9%	-100.0%	13%	0%
	WB	15	1	32	1	113.3%	0.1%	1%	2%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	91	7	128	2	41.0%	-72.5%	7%	10%
	SB	272	10	78	7	-71.3%	-27.7%	21%	6%
B4100 between Meriden Street and Oxford Street	EB	1040	92	1005	90	-3.4%	-2.2%	39%	38%
	WB	583	86	502	84	-13.9%	-2.3%	12%	11%
B4100 between Park Street and Meriden Street	EB	1534	130	1282	120	-16.4%	-7.6%	29%	25%
	WB	1292	170	1292	168	0.0%	-1.2%	44%	44%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	980	49	0	0	-100.0%	-100.0%	29%	0%

Location	Direction	2026 future baseline		2026 with the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 baseline	2026 with the Proposed Scheme
B4100 Park Street between Moor Street and Moat Lane	NB	875	168	908	166	3.8%	-1.2%	63%	63%
	SB	1025	128	796	118	-22.3%	-7.9%	54%	43%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	1044	115	1048	111	0.4%	-3.5%	71%	71%
Masshouse Lane	EB	354	118	732	164	106.8%	39.0%	42%	76%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	805	85	818	82	1.6%	-3.5%	103%	104%
	SB	109	103	482	147	342.2%	42.7%	28%	69%
B4100 Moor Street	EB	285	76	782	118	174.4%	55.2%	88%	100%
	WB	751	30	796	27	6.0%	-9.9%	43%	46%

- 8.6.364 The results of the tables above indicate that locally, the permanent closure of B4114 Park Street to southbound traffic, will result in vehicles re-routing to a combination of Masshouse Lane (westbound), B4100 Moor Street Queensway (southbound) and B4100 Moor Street (eastbound) or Curzon Street (westbound)/Cardigan Street and New Canal Street (southbound).
- 8.6.365 The local road network links forecast to experience an increase in flows greater than 10% in the city centre area with the Proposed Scheme are B4114 Jennens Road (between A4540 Lawley Middleway and Woodcock Street, eastbound, and between Cardigan Street and James Watt Queensway, eastbound), Cardigan Street (southbound), Curzon Street (between A4540 Lawley Middleway and Cardigan Street, westbound, and between Cardigan Street and New Canal Street, westbound), New Canal Street (between Curzon Street and Fazeley Street, southbound), Andover Street (northbound and southbound), Fazeley Street (between Andover Street and New Canal Street, eastbound), New Bartholomew Street (southbound), Bordesley Street (between New Canal Street and New Bartholomew Street, westbound), Meriden Street (between Bordesley Street and B4100 Digbeth High Street, northbound), B4100 Digbeth High Street (between Meriden Street and Oxford Street, eastbound), Masshouse Lane, B4100 Moor Street Queensway (southbound), and B4100 Moor Street (southbound).

- 8.6.366 As the traffic flow increases identified above extend out across the wider city centre area, generally the impacts reduce. However, substantial increases in two-way traffic flows in 2026 have been identified on Floodgate Street, between Fazeley Street and Moore's Row, where traffic is forecast to increase by up to 58% in the AM (08:00-09:00) peak (08:00 to 09:00) and up to 39% in the PM (17:00-18:00) peak .
- 8.6.367 Despite the re-routing of traffic through the local area and the above increases in flows, only B4100 Moor Street (southbound) and Cardigan Street (southbound) are expected to have a volume to capacity ratio of greater than 85%, which increases by more than 5% relative to the baseline.
- 8.6.368 Based on the above assessment, the following key links/junctions have been identified for further detailed investigation:
- Cardigan Street/Curzon Street; and
  - B4100 Moor Street/B4114 Park Street.
- 8.6.369 In addition to the above junctions, further assessments of B4100 Moor Street Queensway/Masshouse Lane, B4100 Moor Street Queensway/James Watt Queensway and New Canal Street/Fazeley Street are also required. B4100 Moor Street Queensway/Masshouse Lane junction forms part of the primary diversionary route for traffic previously using B4114 Park Street, and is linked, via SCOOT, to the operation of the B4100 Moor Street Queensway/James Watt Queensway junction, which form part of the Moor Street Queensway gyratory. The New Canal Street/Fazeley Street junction is identified as it will be reconfigured as part of the Proposed Scheme, with the conversion of New Canal Street to southbound traffic only.
- 8.6.370 Therefore the junctions on the local road network in the city centre that require further assessment are:
- Cardigan Street/Curzon Street;
  - B4100 Moor Street/B4114 Park Street;
  - B4100 Moor Street Queensway Gyratory; and
  - New Canal Street/Fazeley Street.

#### *Washwood Heath*

- 8.6.371 The following tables summarise the 2026 link assessments conducted for the local road network in the Washwood Heath area.
- 8.6.372 Operational flows have been derived from traffic surveys and factored using TEMPRO growth factors to 2026. Traffic in this area associated with the Curzon Street station and Washwood Heath Depot has been added to the flows, and traffic associated with existing land uses at the depot has been removed from the network.

Table 8-405: Washwood Heath local road network 2026 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2026 future baseline		2026 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 Baseline	2026 With the Proposed Scheme
Wolseley Drive	EB	82	10	2	2	-97.6%	-80.5%	7%	0%
	WB	161	8	35	2	-78.4%	-74.0%	14%	3%
Alstom Access Road south of the A47 Heartlands Parkway	NB	28	15	0	0	-100.0%	-100.0%	2%	0%
	SB	33	12	0	0	-100.0%	-100.0%	3%	0%
Aston Church Road	NB	428	45	428	45	0.0%	0.0%	33%	33%
	SB	623	54	623	54	0.0%	0.0%	48%	48%
Arley Road	NB	109	19	109	19	0.0%	0.0%	8%	8%
	SB	106	15	106	15	0.0%	0.0%	8%	8%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	392	81	390	81	-0.3%	0.0%	26%	26%
	SB	537	77	536	77	-0.2%	-0.5%	35%	35%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	577	73	575	73	-0.2%	0.0%	38%	38%
	SB	727	77	726	77	-0.1%	-0.5%	48%	47%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	94	14	94	14	0.0%	0.0%	7%	7%
	SB	43	17	43	17	0.0%	0.0%	3%	3%
Dorset Road between Arley Road and Pennine Way	EB	63	4	63	4	0.0%	0.0%	5%	5%
	WB	39	1	39	1	0.0%	0.0%	3%	3%
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	881	118	882	118	0.2%	0.0%	58%	58%
	WB	1066	126	1069	126	0.3%	0.0%	70%	70%
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	934	130	935	130	0.2%	0.0%	61%	61%
	WB	1048	112	1051	112	0.3%	0.0%	68%	69%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	340	64	339	64	-0.4%	0.0%	26%	26%
	SWB	440	56	438	56	-0.5%	-0.7%	34%	34%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	411	30	411	30	0.0%	0.0%	32%	32%
	WB	496	21	496	21	0.0%	0.0%	38%	38%
Melvina Road	NB	767	71	767	71	0.0%	0.0%	85%	85%
	SB	634	89	634	89	0.0%	0.0%	70%	70%

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Table 8-406: Washwood Heath local road network 2026 future baseline and with the Proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2026 future baseline		2026 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2026 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 Baseline	2026 With the Proposed Scheme
Wolseley Drive	EB	152	4	32	2	-79.2%	-48.0%	13%	3%
	WB	79	10	2	2	-97.5%	-80.5%	7%	0%
Alstom Access Road south of the A47 Heartlands Parkway	NB	19	3	0	0	-100.0%	-100.0%	1%	0%
	SB	9	4	0	0	-100.0%	-100.0%	1%	0%
Aston Church Road	NB	743	40	743	40	0.0%	0.0%	57%	57%
	SB	561	29	561	29	0.0%	0.0%	43%	43%
Arley Road	NB	137	7	137	7	0.0%	0.0%	11%	11%
	SB	91	13	91	13	0.0%	0.0%	7%	7%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	588	59	583	59	-0.8%	0.0%	38%	38%
	SB	425	53	423	53	-0.5%	0.0%	28%	28%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	953	53	949	53	-0.5%	0.0%	62%	62%
	SB	715	54	713	54	-0.3%	0.0%	47%	47%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	22	13	22	13	0.0%	0.0%	2%	2%
	SB	81	3	81	3	0.0%	0.0%	6%	6%
Dorset Road between Arley Road and Pennine Way	EB	16	1	16	1	0.0%	0.0%	1%	1%
	WB	70	0	70	0	0.0%	0.0%	5%	5%
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	1017	90	1020	90	0.3%	0.0%	66%	67%
	WB	956	81	957	81	0.1%	0.0%	62%	63%
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	1169	77	1172	77	0.2%	0.0%	76%	77%
	WB	993	79	995	79	0.1%	0.0%	65%	65%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	531	27	527	27	-0.7%	0.0%	41%	41%
	SWB	375	18	374	18	-0.5%	0.0%	29%	29%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	477	8	477	8	0.0%	0.0%	37%	37%
	WB	273	12	273	12	0.0%	0.0%	21%	21%
Melvina Road	NB	1042	51	1042	51	0.0%	0.0%	116%	116%
	SB	415	22	415	22	0.0%	0.0%	46%	46%

8.6.373 Compared to the 2026 future baseline, the tables above indicate that all local road network links in the Washwood Heath area will experience either no change or small reductions in traffic flows with the Proposed Scheme. The decrease in flows is due to the removal of traffic associated with the existing use of the Washwood Heath Depot site, which includes UK Mail. The traffic associated with the proposed depot will predominantly be outside of the AM (08:00-09:00) and PM (17:00-18:00) peak hours and will have no impact on the local road network during the peak hours.

8.6.374 Therefore, based on the results of the link assessment for 2026, no junctions on the local road network in the Washwood Heath area require further assessment.

### Screenline assessment 2026

8.6.375 To further consider changing travel patterns and impacts arising from the re-routing of traffic across the highway network due to local road closures associated with the Proposed Scheme, an assessment of traffic flows across a screenline of key routes in the city centre has been undertaken. The screen line includes the key north-south routes through the city centre which would be affected by the closure of B4114 Park Street and converting New Canal Street to one way southbound, as shown in the figure below. The table below displays the results for the AM (08:00-09:00) and PM (17:00-18:00) peaks in 2026.

Figure 8-37: Screenline location

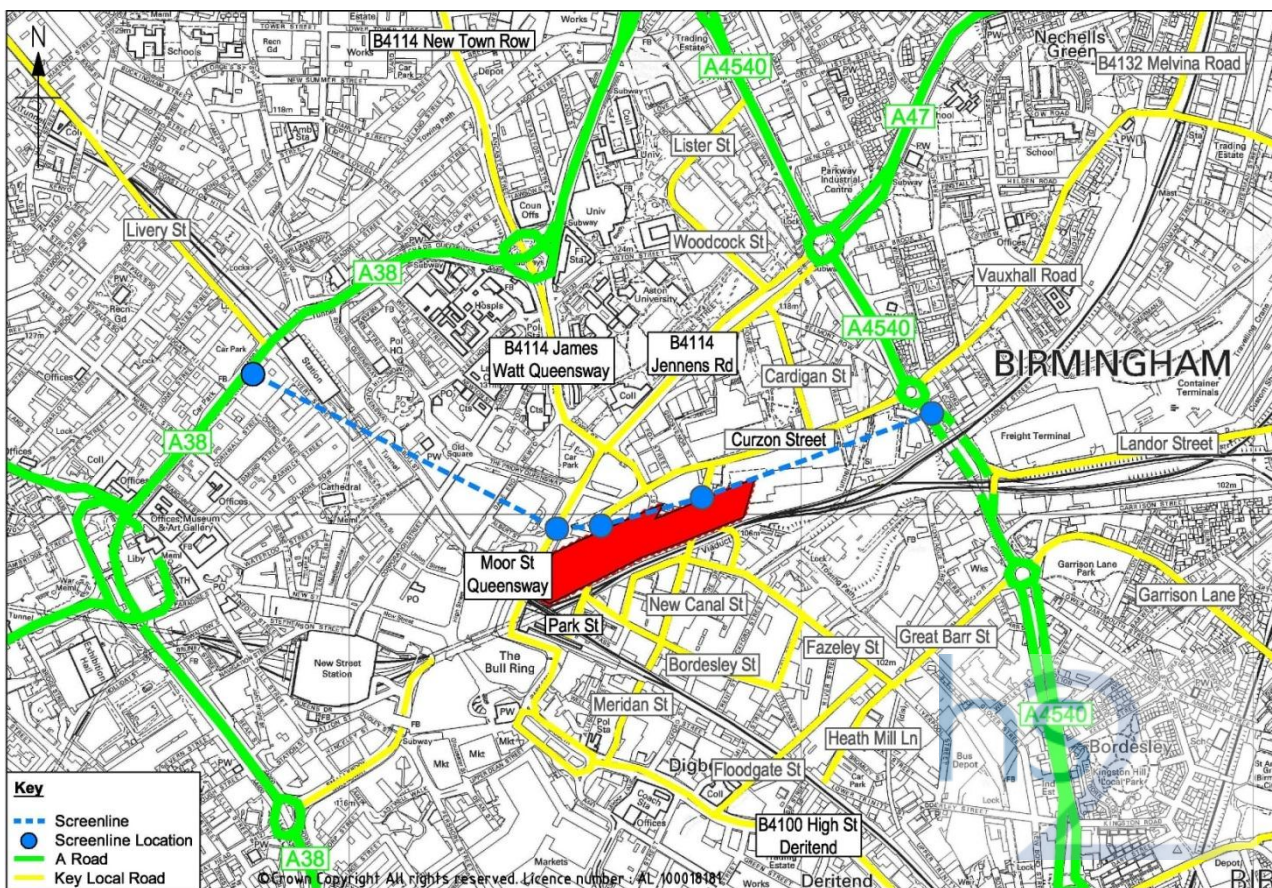




Table 8-407: CFA 26 - 2026 screenline assessment

<b>2026 AM peak (08:00-09:00)</b>				
<b>Location</b>	<b>Direction</b>	<b>Future Baseline</b>	<b>Future Baseline With the Proposed Scheme Traffic</b>	
		<b>All vehicles</b>	<b>All vehicles</b>	<b>With the Proposed Scheme % change from 2026 future baseline</b>
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1838	1963	6.8%
	SB	2077	2106	1.4%
New Canal Street between Curzon Street and Fazeley Street	NB	338	0	-100.0%
	SB	465	645	38.7%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1113	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	760	769	1.2%
	SB	115	513	346.1%
A38 between Livery Street and Ludgate Hill	NB	4004	3976	-0.7%
	SB	4035	4051	0.4%
<b>2026 PM (17:00-18:00) peak</b>				
<b>Location</b>	<b>Direction</b>	<b>Future Baseline</b>	<b>Future Baseline With the Proposed Scheme Traffic</b>	
		<b>All vehicles</b>	<b>All vehicles</b>	<b>With the Proposed Scheme % change from 2026 future baseline</b>
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1864	1904	2.1%
	SB	1772	1803	1.8%
New Canal Street between Curzon Street and Fazeley Street	NB	484	0	-100.0%
	SB	271	595	119.6%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	980	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	805	818	1.6%
	SB	109	482	342.2%
A38 between Livery Street and Ludgate Hill	NB	4353	4376	0.5%
	SB	3546	3626	2.2%

8.6.376 Compared to the 2026 future baseline, the greatest percentage changes in traffic flows across the screenline as a result of the Proposed Scheme are expected on B4100 Moor Street Queensway (southbound) and New Canal Street (southbound). Only small increases in flow are expected on the A4540 and A38 across the screenline in the AM (08:00-09:00) and PM (17:00-18:00) peak.

8.6.377 The table above shows that B4100 Moor Street Queensway southbound is forecast to have highest number of additional vehicles in both the AM (08:00-09:00) peak and PM (17:00-18:00) peak, with approximately 400 additional vehicles in both periods. New Canal Street is also forecast to experience increases in flows, with approximately 200 additional vehicles in the AM (08:00-09:00) peak and approximately 300 additional vehicles in the PM (17:00-18:00) peak. The changes in flows on the A38 and A4540 are small with forecast increases of flows less than 100 vehicles.

8.6.378 It should be noted that although large percentage increases in flows are predicted on B4100 Moor Street Queensway in the southbound direction as a result of the closure of B4114 Park Street, this is partly due to the low baseline traffic flows on Moor Street Queensway. The forecast flows on B4100 Moor Street Queensway in the southbound direction with the Proposed Scheme are forecast to be 33% (AM peak) and 41% (PM peak) less in the southbound direction than in the northbound direction.

### *Junction performance 2026*

#### **Ashted Circus**

8.6.379 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at Ashted Circus.

Table 8-408: Ashted Circus modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Dartmouth Middleway (N)	1862	0.71	3	1846	0.71	3
A47 Nechells Parkway (E)	862	0.71	3	838	0.71	3
A4540 Lawley Middleway (S)	1486	0.54	1	1409	0.50	1
B4114 Jennens Road (W)	235	0.23	0	321	0.30	1
Total	4445		7	4414		8
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Dartmouth Middleway (N)	1518	0.56	1	1394	0.53	1
A47 Nechells Parkway (E)	627	0.39	1	631	0.40	1
A4540 Lawley Middleway (S)	1438	0.47	1	1252	0.38	1

B4114 Jennens Road (W)	479	0.39	1	670	0.51	1
Total	4062		4	3947		4

8.6.380 Commensurate with the 2026 future baseline, the junction is expected to operate within capacity on all arms, with comparable levels of queuing. A maximum queue of three PCU is expected on the northern arm (A4540) in the AM (08:00-09:00) peak with the Proposed Scheme. No interaction is expected with adjacent junctions based on the predicted queues.

### Curzon Circle

8.6.381 The following tables display the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at Curzon Circle.

Table 8-409: Curzon Circle modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Curzon Street	376	78	12	229	94	10
A4540 Lawley Middleway (N)	2377	147	445	2422	190	173
Vauxhall Road	739	141	143	747	189	213
A4540 Lawley Middleway (S)	2036	118	212	2176	151	120
Total	5528		812	5574		516
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Curzon Street	715	118	86	270	55	8
A4540 Lawley Middleway (N)	1646	116	176	1917	196	145
Vauxhall Road	553	90	20	562	110	48
A4540 Lawley Middleway (S)	1914	116	208	1958	151	153
Total	4828		489	4707		354

8.6.382 Increased traffic flows are expected all arms of Curzon Circle in the AM (08:00-09:00) and PM (17:00-18:00) peaks with the Proposed Scheme, with the exception of Curzon Street, as shown above.

8.6.383 With the Proposed Scheme, the junction is expected to operate over capacity (90% Degree of Saturation), with higher Degree of Saturation values on A4540 Lawley Middleway (north and south) and Vauxhall Road arms with the introduction of the Proposed Scheme. However, overall queuing at the junction is expected to reduce.

8.6.384 The greatest queues are expected on the Vauxhall Road and the A4540 Lawley Middleway (north) arms in the AM (08:00-09:00) peak. Interaction with Ashted Circus is expected due to the predicted queuing at Curzon Circle in the AM (08:00-09:00) and PM (17:00-18:00) peaks.

### Garrison Circus

8.6.385 The following table displays the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at Garrison Circus.

Table 8-410: 2026 with the Proposed Scheme Garrison Circus modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Lawley Middleway (N)	2346	0.76	4	2383	0.76	3
Garrison Lane	495	0.75	3	495	0.70	3
A4540 Watery Lane Middleway (S)	1514	1.00	29	1531	1.01	34
Great Barr Street	412	1.74	111	426	1.75	115
Total	4767		147	4835		155
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Lawley Middleway (N)	2103	1.08	98	2113	1.06	83
Garrison Lane	537	1.04	22	483	0.94	9
A4540 Watery Lane Middleway (S)	1083	1.41	225	1043	1.36	175
Great Barr Street	704	1.25	97	780	1.34	149
Total	4427		441	4419		416

8.6.386 Compared to the 2026 future baseline, the operation of the junction is comparable or improved in terms of RFC, with the exception of Great Barr Street, where queuing levels increase in the PM (17:00-18:00) peak. No blocking back to Curzon Circle or Bordesley Circus are predicted, based on the results of the modelling.

### Curzon Street/Cardigan Street

8.6.387 At the Curzon Street/Cardigan Street junction, the Proposed Scheme will result in increased traffic flows on Cardigan Street. The following table displays the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at Curzon Street/Cardigan Street.

Table 8-411: Curzon Street/Cardigan Street modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
Curzon Street	321	0.00	0	19	0.00	0
Cardigan Street	99	0.26	0	423	0.85	5
New Canal Street	393	0.00	0	448	0.02	0
Total	813		0	890		5

17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
Curzon Street	491	0.00	0	48	0.00	0
Cardigan Street	3	0.01	0	184	0.38	1
New Canal Street	256	0.00	0	428	0.00	0
Total	750		0	660		1

8.6.388 Compared to the 2026 future baseline, the results indicate that the Proposed Scheme will result in increased traffic levels at Cardigan Street and Curzon Street east. As a result the Cardigan Street arm expected to operate at the recommended capacity threshold (0.85 RFC) in the AM (08:00-09:00) Peak, with a maximum queue of 5 PCU.

### Moor Street Queensway

8.6.389 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane.

Table 8-412: Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway						
B4114 James Watt Queensway	1487	101	45	1169	100	32
B4114 Jennens Road	318	51	6	307	49	6
B4100 Moor Street Queensway	1058	102	23	1098	105	32
Moor Street Queensway/Masshouse Lane						
Priory Street Queensway	184	44	3	184	59	7
Masshouse Lane	335	37	3	736	61	10
B4100 Moor Street Queensway (S)	934	55	13	941	35	14
Total	4316		92	4435		100
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway						
B4114 James Watt Queensway	854	82	17	785	71	13
B4114 Jennens Road	675	77	13	343	67	7
B4100 Moor Street Queensway	1198	83	13	1150	74	17
Moor Street Queensway/Masshouse Lane						
Priory Street Queensway	176	44	3	178	63	7
Masshouse Lane	497	61	5	889	69	17
B4100 Moor Street Queensway (S)	906	60	13	906	37	16
Total	4306		64	4251		76

8.6.390 At the Moor Street Queensway gyratory, with the Proposed Scheme, traffic flows will increase due to the closure of B4114 Park Street and New Canal Street (northbound) to general traffic. This will result in increased demand for particular movements, for example at the left turn at Masshouse Lane to B4100 Moor Street Queensway.

- 8.6.391 The results indicate that commensurate with the future baseline, the B4100 Moor Street Queensway/James Watt Queensway junction will operate over capacity in the AM (08:00-09:00) peak with the introduction of the Proposed Scheme. Longer queues are observed on the B4100 Moor Street Queensway northbound arm in both the AM (08:00-09:00) and PM (17:00-18:00) peak. Increases in queuing are also expected at the B4100 Moor Street Queensway/Masshouse Lane junction on all arms in both the AM (08:00-09:00) and PM (17:00-18:00) peak; however the junction is forecast to continue to operate within capacity with the Proposed Scheme.

*New Canal Street/Fazeley Street*

- 8.6.392 At the New Canal Street/Fazeley Street junction, the New Canal Street (northern arm) will become a two lane entry only, as part of the proposals to convert New Canal Street to a one way southbound traffic only link.
- 8.6.393 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at New Canal Street/Fazeley Street.

Table 8-413: 2026 New Canal Street/Fazeley Street modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
New Canal Street (N)	497	62	10	715	41	5
Fazeley Street (E)	146	36	3	9	4	0
New Canal Street (S)	332	37	6	60	9	0
Fazeley Street (W)	536	62	11	0	0	0
Total	1511		30	784		5
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
New Canal Street (N)	313	27	4	610	33	4
Fazeley Street (E)	213	40	5	1	1	0
New Canal Street (S)	678	58	11	179	28	1
Fazeley Street (W)	242	58	6	0	0	0
Total	1446		25	790		5

- 8.6.394 The junction is forecast to operate within capacity and will exhibit an improved level of performance relative to the future baseline, with reduced queuing overall at the junction in the AM (08:00-09:00) and PM (17:00-18:00) peaks. The improvements in performance are primarily due to reduced flows through the junction, as a result of the alterations to New Canal Street northern arm.

### **B4100 Moor Street/B4114 Park Street**

- 8.6.395 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at the B4100 Moor Street/B4114 Park Street junction.

Table 8-414: Moor Street/Park Street modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Park Street (N)	709	33	14	27	10	1
Car Park	1	1	0	2	1	0
Park Street (S)	1162	47	19	1220	50	20
Moor Street	191	41	7	685	32	12
Total	2063		40	1934		33
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Park Street (N)	874	49	21	87	31	3
Car Park	14	10	1	27	20	1
Park Street (S)	1093	45	17	1124	46	18
Moor Street	385	49	12	936	44	19
Total	2366		51	2174		41

- 8.6.396 At the B4100 Moor Street/B4114 Park Street junction, traffic flows on B4114 Park Street (north) will reduce greatly, due to the closure of the link for southbound traffic between Masshouse Lane and B4100 Moor Street. However, the flow on the B4100 Moor Street and B4114 Park Street (south) will increase, due to traffic being rerouted from B4114 Park Street and New Canal Street northbound, as indicated by the table above.



- 8.6.397 As a result of these changes, increases in queuing, relative to the 2026 future baseline, are expected on the B4100 Moor Street and B4114 Park Street (south) arms, with a reduction in queuing on the B4114 Park Street (north) arm. A maximum queue of 20 PCU is expected on the B4114 Park Street (S) arm in the AM (08:00-09:00) peak. The junction is expected to operate within capacity in both the AM (08:00-09:00) and PM (17:00-18:00) peak with the introduction of the Proposed Scheme.

### *Strategic and local road network traffic flows 2041 Phase Two*

#### **Overall Network Performance**

- 8.6.398 The tables below summarise the overall network statistics for the BCCM model for 2041, and provide a comparison between the future baseline and 2041 with the Proposed Scheme (Phase Two).
- 8.6.399 In the 'with the Proposed Scheme' scenarios the BCCM includes the changes to the local highway network required to accommodate the Proposed Scheme, the removal of committed developments on Curzon Street (Curzon Park and City Park Gate), and traffic associated with the Proposed Scheme.

Table 8-415: Network Performance Statistics, 2041 future baseline and with the Proposed Scheme

Statistics	AM		PM	
	2041 future baseline	2041 with the Proposed Scheme	2041 future baseline	2041 with the Proposed Scheme
Transient Queues (PCU.Hrs)	1534.6	1527.7	1491.5	1496.3
Overcapacity Queues (PCU.Hrs)	2062.5	2315.3	1042.1	1013.3
Cruise Time (PCU.Hrs)	3199.4	3199.2	3089.3	3094.4
Total Travel Time (PCU.Hrs)	6796.5	7042.2	5623.0	5604.0
Travel Distance (PCU.Kms)	139159.0	139283.8	133,794.7	133,924.3
Average Speed (KPH)	20.5	19.8	23.8	23.9
Total Trips Loaded	48,900	48,633	47,385	47,104

- 8.6.400 The above table shows that in 2041, in both the AM (08:00-09:00) and PM (17:00-18:00) peak hours, the change in the overall BCCM model performance is forecast to be minimal, as in all scenarios with the Proposed Scheme there is a net reduction in the total number of trips in the model is reduced compared to the baseline. This is due to forecast traffic associated with the Proposed Scheme being less than the committed developments that the Proposed Scheme replaces.

- 8.6.401 In the AM (08:00-09:00) peak the Proposed Scheme will result in increases in queuing and delays in the network. This increase in queues (particularly over capacity queues) and delays, despite the reduction in total trips, suggests that the changes to the road network as part of the Proposed Scheme results in additional congestion on other routes. In the PM (17:00-18:00) peak queuing and delays in the network are improved with the Proposed Scheme.
- 8.6.402 Figure 8-38 and Figure 8-39 show the change in actual flow across the city centre during the operational scenario in 2041, for the AM (08:00-09:00) and PM (17:00-18:00) peaks respectively. The bandwidths represent the difference in flow (in PCU) between the 2041 future baseline with Proposed Scheme and the future baseline without the Proposed Scheme. Red represents an increase in trips during operation whilst green is a decrease.

Figure 8-38: 2041 future baseline with Proposed Scheme (-) future baseline scenario (AM peak)

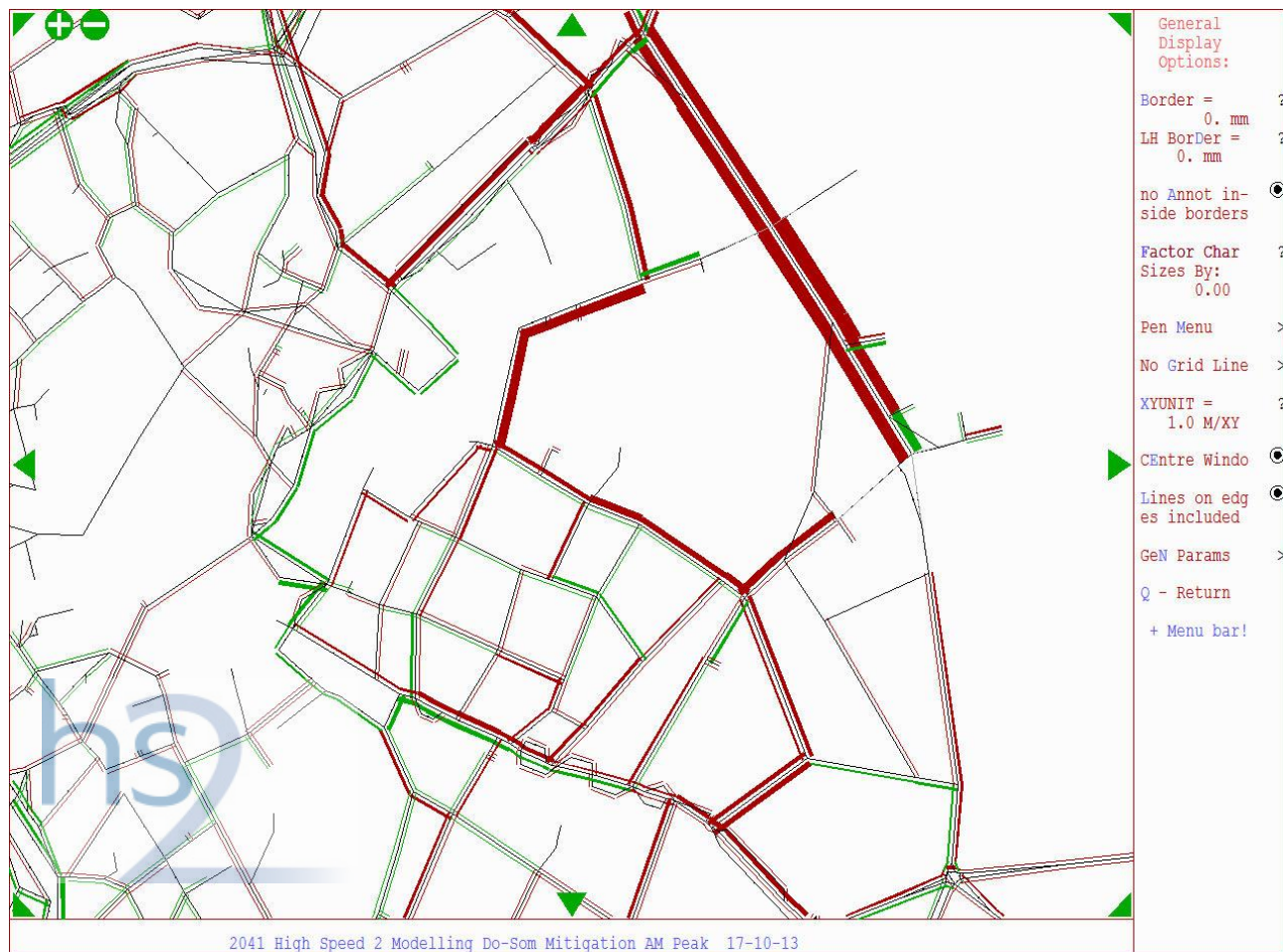
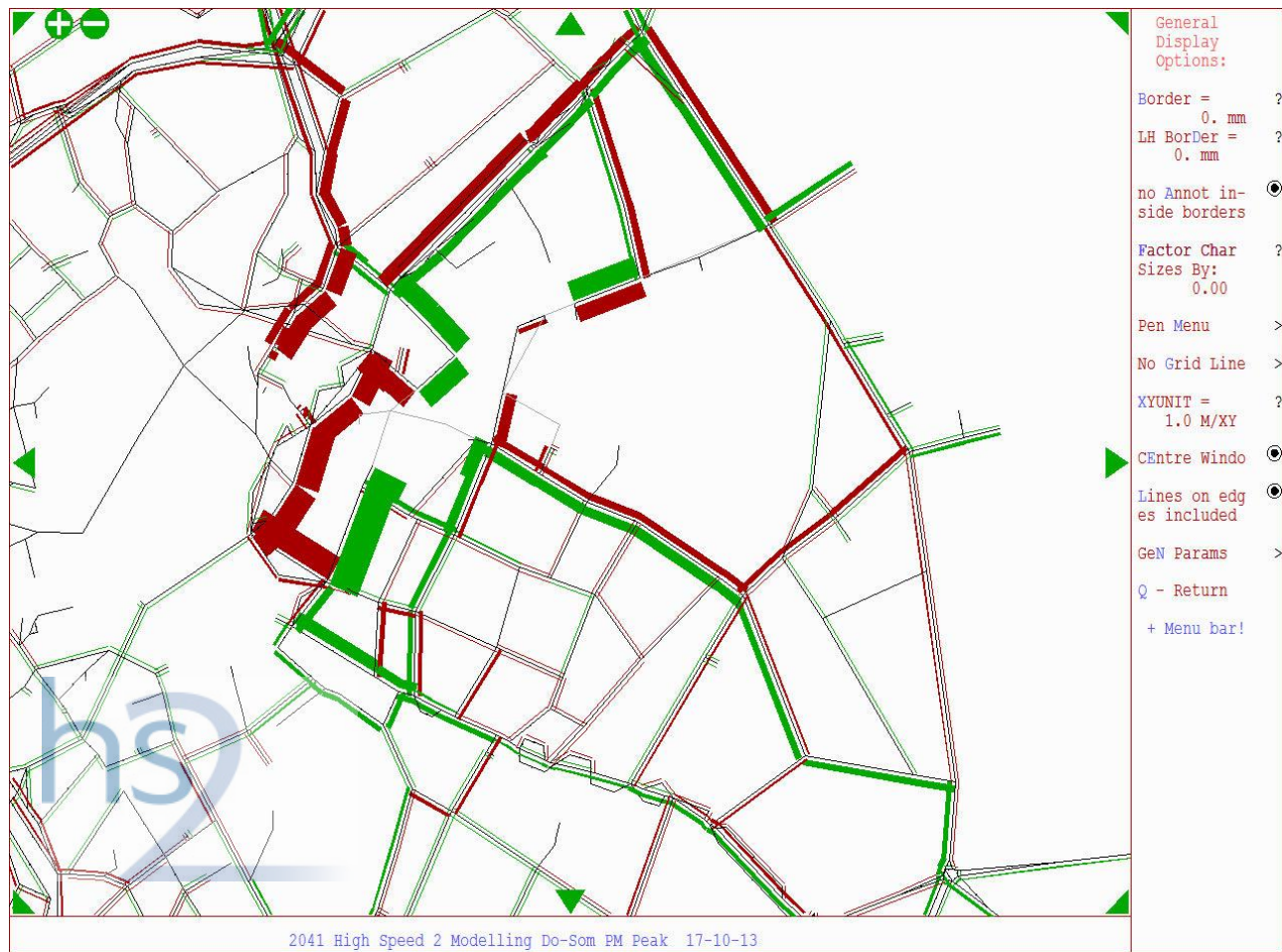


Figure 8-39: 2041 future baseline with Proposed Scheme (-) future baseline scenario (PM peak)



8.6.403 The following section reviews in detail the impacts across the strategic and local road network associated with the changes in flow arising from delivery of the Proposed Scheme.

### Strategic road network - links

8.6.404 The following tables summarise the 2041 link assessments conducted for the main strategic road network that will serve the Curzon Street station and the Washwood Heath Depot site.

#### *City centre*

8.6.405 The following tables summarise the 2041 link assessments conducted for the strategic road network in the city centre area.

8.6.406 Operational flows have been derived by taking outputs from the BCCM model. The model was run for 2041, and includes road closures and changes required to accommodate the Proposed Scheme, and traffic associated with the operation of the Proposed Scheme in 2041 Phase Two.

Table 8-416: City centre strategic road network 2041 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
A47 Nechells Parkway between Melvina Road and A4540	EB	928	122	875	119	-5.7%	-2.5%	30%	28%
	WB	691	145	657	140	-4.9%	-3.4%	32%	31%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	2381	210	2377	208	-0.2%	-0.9%	103%	102%
	SB	5447	286	5433	286	-0.3%	0.1%	57%	57%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	3139	282	3125	279	-0.5%	-1.1%	42%	41%
	SB	4906	305	4825	309	-1.7%	1.2%	64%	63%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1347	126	1375	130	2.1%	3.3%	80%	81%
	WB	2135	168	2188	162	2.5%	-3.6%	61%	63%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1826	211	1653	186	-9.5%	-11.9%	98%	88%
	SB	2054	189	1951	175	-5.0%	-7.4%	92%	86%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1563	176	1368	150	-12.5%	-14.8%	68%	59%
	SB	2149	202	2079	189	-3.3%	-6.5%	58%	56%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1959	238	1712	210	-12.6%	-11.7%	36%	32%
	SB	2105	210	2237	219	6.3%	4.2%	104%	110%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1933	185	2012	194	4.1%	4.9%	102%	107%
	SB	2085	238	2099	225	0.7%	-5.4%	65%	65%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1596	118	1576	121	-1.2%	2.6%	48%	47%
	SB	1757	173	1825	165	3.9%	-4.7%	45%	47%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1790	129	1758	120	-1.8%	-7.0%	59%	56%
	SB	1675	218	1693	203	1.0%	-6.9%	75%	77%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1555	143	1588	158	2.1%	10.4%	101%	101%
	SWB	1539	170	1598	170	3.8%	0.0%	43%	44%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1306	165	1298	164	-0.6%	-0.6%	41%	40%
	SB	1377	160	1408	156	2.2%	-2.5%	123%	121%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	1148	150	1115	149	-2.9%	-0.7%	90%	91%
	SB	1191	260	1171	257	-1.7%	-1.1%	113%	111%

Table 8-417: City centre strategic road network 2041 future baseline and with the Proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
A47 Nechells Parkway between Melvina Road and A4540	EB	696	52	695	51	-0.1%	-1.9%	21%	21%
	WB	742	55	691	51	-6.9%	-7.3%	31%	28%
A38 (M) Aston Expressway between Park Circus and Aston Road (north)	NB	3569	71	3524	70	-1.3%	-1.3%	145%	143%
	SB	3384	174	3376	174	-0.2%	0.0%	36%	36%
A38 Corporation Street between Aston Road (south) and Holt Street/Bagot Street	NB	4304	105	4155	102	-3.5%	-3.1%	54%	52%
	SB	3777	184	3773	183	-0.1%	-0.6%	49%	49%
A4540 Newtown Middleway between Dartmouth Circus and New Town Row	EB	1570	38	1588	39	1.1%	2.8%	87%	88%
	WB	1385	42	1403	44	1.3%	4.9%	36%	36%
A4540 Dartmouth Middleway between Dartmouth Circus and Great Lister Street	NB	1786	22	1728	23	-3.3%	4.4%	109%	107%
	SB	1690	39	1549	38	-8.3%	-2.8%	68%	62%
A4540 Dartmouth Middleway between Great Lister Street and Ashted Circus	NB	1521	20	1420	20	-6.7%	0.3%	56%	51%
	SB	1777	43	1627	42	-8.4%	-2.4%	45%	41%
A4540 Lawley Middleway between Ashted Circus and Curzon Circle	NB	1726	52	1515	50	-12.2%	-3.7%	29%	26%
	SB	1711	46	1900	54	11.0%	17.2%	87%	98%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1912	41	1962	45	2.6%	9.8%	103%	107%
	SB	1767	43	1761	42	-0.3%	-2.0%	50%	50%
A4540 Watery Lane Middleway between Garrison Circus and Bordesley Circus	NB	1164	20	1190	20	2.2%	-0.1%	33%	34%
	SB	1455	33	1472	34	1.2%	2.9%	35%	35%
A4540 Bordesley Middleway between Bordesley Circus and Camp Hill Circus	NB	1695	35	1630	31	-3.8%	-11.1%	53%	51%
	SB	1840	67	1880	67	2.2%	0.1%	86%	87%
A4540 Highgate Middleway between Camp Hill Circus and New Moseley Road	NEB	1781	34	1785	34	0.2%	-0.3%	100%	98%
	SWB	2049	58	2171	60	6.0%	3.3%	53%	56%
A45 Small Heath Highway between Golden Hillock Road and Bordesley Circus	NB	1430	63	1414	62	-1.1%	-1.6%	41%	40%
	SB	1530	45	1537	42	0.5%	-6.7%	126%	126%
A34 Stratford Road between Henley Street and Camp Hill Circus	NB	858	87	835	87	-2.7%	0.0%	81%	81%
	SB	1267	69	1247	68	-1.6%	-1.6%	103%	102%

- 8.6.407 Compared to the 2041 future baseline, the tables above indicate that traffic flows on the majority of strategic road network links will either reduce or experience small increases in flow with the Proposed Scheme. The only link forecast to experience an increase in flows greater than 10% as a result of the Proposed Scheme is the A4540 Lawley Middleway (between Ashted Circus and Curzon Circle, southbound) in the AM (08:00-09:00) peak.
- 8.6.408 The tables also show that increases in traffic result in the volume to capacity ratio being greater than 85% and increasing by more than 5% relative to the 2026 future baseline on A4540 Lawley Middleway (between Garrison Circus and Curzon Circle, northbound, and between Ashted Circus and Curzon Circle, southbound).
- 8.6.409 Commensurate with the 2026 results, the A4540 Lawley Middleway/Curzon Street junction (Curzon Circle) has been identified for further detailed investigation based on the results of the link assessment. Furthermore, due to the potential interaction of Curzon Circle with Ashted Circus (north) and Garrison Circus (south), the operation of these junctions has also been considered further.

*Washwood Heath*

- 8.6.410 The following tables summarise the 2041 link assessments conducted for the strategic road network in the Washwood Heath area.
- 8.6.411 Operational flows have been derived from traffic surveys and factored using TEMPRO growth factors to 2041. Traffic in this area associated with the Curzon Street station and Washwood Heath Depot has been added to the flows, and traffic associated with existing land uses at the depot has been removed from the network.



Table 8-418: Washwood Heath strategic road network 2041 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme construction traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2026 Baseline	2026 With the Proposed Scheme
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	2357	92	2310	92	-2.0%	0.6%	74%	72%
	SB	1789	74	1686	69	-5.8%	-7.2%	56%	53%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	943	142	933	140	-1.1%	-0.9%	26%	26%
	WB	2189	244	2174	243	-0.7%	-0.1%	61%	60%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	890	199	880	198	-1.2%	-0.7%	25%	24%
	WB	2036	227	2020	227	-0.8%	-0.1%	57%	56%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	660	168	653	167	-1.0%	-0.7%	18%	18%
	SB	1621	186	1609	186	-0.7%	-0.1%	45%	45%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	1399	142	1397	141	-0.2%	-0.8%	44%	44%
	SB	2444	159	2439	159	-0.2%	-0.2%	76%	76%

Table 8-419: Washwood Heath strategic road network 2041 future baseline and with the proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	All vehicles	HGV
A4040 Bromford Lane between A47 Fort Parkway and Wolseley Drive	NB	2152	52	2075	50	-3.6%	-4.6%	67%	65%
	SB	2303	70	2254	63	-2.1%	-9.8%	72%	70%
A47 Heartlands Parkway between A4040 Bromford Lane and Alstom Access Rd	EB	1368	122	1358	120	-0.7%	-1.7%	38%	38%
	WB	1110	119	1094	117	-1.4%	-1.2%	31%	30%
A47 Heartlands Parkway between Alstom Access Rd and Aston Church Road	EB	1720	117	1711	115	-0.6%	-1.7%	48%	48%
	WB	1066	106	1050	104	-1.4%	-1.4%	30%	29%
A47 Heartland Parkway between Aston Church Rd and B4114 Saltley Viaduct	NB	1431	95	1424	94	-0.5%	-1.9%	40%	40%
	SB	699	66	688	65	-1.5%	-1.5%	19%	19%
A47 Saltley Road between B4114 Saltley Viaduct and Melvina Rd	NB	2304	81	2303	79	0.0%	-2.3%	72%	72%
	SB	1553	79	1547	78	-0.4%	-1.3%	49%	48%

8.6.413 Compared to the 2041 future baseline, the tables above indicate that all strategic road network links in the Washwood Heath area will experience small reductions in traffic flows with the Proposed Scheme. The decrease in flows is due to the removal of traffic associated with the existing use of the Washwood Heath Depot site, which includes UK Mail. The traffic associated with the proposed depot will predominantly be outside of the AM (08:00-09:00) and PM (17:00-18:00) peak hours and therefore will have no impact on the strategic road network during the peak hours.

8.6.414 Commensurate with the results for 2026, no junctions on the strategic road network in the Washwood Heath area require further assessment.

### Local road network - links

8.6.415 The following tables summarise the 2041 assessments conducted for the local road network links that will serve the Curzon Street station and the Washwood Heath Depot site.

#### City centre

8.6.416 The following tables summarise the 2041 link assessments conducted for the local road network in the city centre.

8.6.417 Operational flows have been derived by taking outputs from the BCCM model. The model was run for 2041, and includes road closures and changes required to accommodate the Proposed Scheme, and traffic associated with the operation of the Proposed Scheme in 2041 (Phase Two).

Table 8-420: City centre local road network 2041 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	526	16	433	15	-17.7%	-6.3%	43%	36%
	WB	640	78	647	78	1.1%	0.0%	87%	82%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	212	41	408	72	92.5%	75.6%	12%	18%
	WB	855	69	786	80	-8.1%	16.0%	25%	27%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	287	56	687	85	139.4%	51.8%	11%	20%
	WB	243	65	230	64	-5.3%	-1.5%	107%	103%
Cardigan Street between B4114 Jennens Road and Curzon Street	NB	10	1	1	0	-90.0%	-100.0%	1%	0%
	SB	226	20	388	27	71.7%	35.0%	21%	100%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	451	33	177	22	-60.8%	-33.4%	50%	30%
	WB	317	22	459	35	44.8%	59.2%	20%	25%
Curzon Street between Cardigan Street and New Canal Street	EB	460	34	26	0	-94.3%	-100.0%	27%	1%
	WB	539	56	754	60	39.9%	7.2%	5%	42%
New Canal Street between Curzon Street and Fazeley Street	NB	490	35	0	0	-100.0%	-100.0%	20%	0%
	SB	551	55	689	60	25.0%	9.1%	28%	39%
Banbury Street	EB	88	5	0	0	-100.0%	-100.0%	5%	0%
	WB	33	4	0	0	-100.0%	-100.0%	6%	0%
Andover Street	NB	24	0	33	0	37.5%	0.0%	4%	4%
	SB	54	0	68	0	25.9%	0.0%	6%	4%
Fazeley Street between Andover Street and New Canal Street	EB	572	56	254	13	-55.6%	-76.8%	33%	14%
	WB	125	13	8	0	-93.6%	-100.0%	22%	4%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	411	36	0	0	-100.0%	-100.0%	54%	0%
	WB	164	17	144	16	-12.2%	-5.9%	10%	15%
New Bartholomew Street	SB	32	1	144	16	350.4%	1051.0%	2%	11%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	96	11	97	9	1.1%	-19.1%	7%	7%
	WB	61	6	19	1	-68.9%	-82.0%	5%	1%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	108	6	11	0	-89.8%	-100.0%	16%	1%
	WB	16	3	19	4	18.8%	33.3%	1%	1%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	97	11	165	9	69.6%	-19.1%	7%	13%
	SB	152	33	29	3	-80.9%	-91.0%	12%	2%
B4100 between Meriden Street and Oxford Street	EB	457	122	540	120	18.2%	-1.7%	17%	19%
	WB	653	109	691	110	5.8%	0.9%	11%	11%
B4100 between Park Street and Meriden Street	EB	1278	202	915	169	-28.4%	-16.4%	21%	16%
	WB	1482	238	1369	242	-7.6%	1.7%	45%	42%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1144	106	0	0	-100.0%	-100.0%	36%	0%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
B4100 Park Street between Moor Street and Moat Lane	NB	935	208	1086	225	16.1%	8.2%	66%	71%
	SB	766	170	668	150	-12.8%	-11.7%	44%	36%
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	890	153	894	150	0.4%	-1.9%	58%	59%
Masshouse Lane	EB	198	103	725	172	266.2%	67.0%	34%	76%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	792	132	800	128	1.0%	-3.0%	94%	95%
	SB	113	96	637	160	463.7%	66.7%	28%	71%
B4100 Moor Street	EB	93	75	639	150	587.1%	100.0%	76%	96%
	WB	807	79	961	97	19.1%	22.7%	47%	50%

Table 8-421: City centre local road network 2041 future baseline and with the Proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
Vauxhall Road between St James Place and A4540 (Curzon Circle)	EB	799	15	656	14	-17.9%	-7.0%	65%	54%
	WB	539	11	549	11	1.9%	-0.1%	82%	63%
B4114 Jennens Road between A4540 Lawley Middleway and Woodcock Street	EB	434	20	637	23	46.8%	15.0%	23%	33%
	WB	660	46	464	39	-29.7%	-15.2%	18%	11%
B4114 Jennens Road between Cardigan Street and B4114 James Watt Queensway	EB	130	35	492	38	278.5%	8.5%	8%	17%
	WB	609	64	372	53	-38.9%	-17.2%	102%	53%
Cardigan Street between B4114 Jennens Road and Curzon Street	NB	73	3	15	0	-79.5%	-100.0%	1%	0%
	SB	7	0	187	2	2571.4%	N/A	1%	47%
Curzon Street between A4540 Lawley Middleway and Cardigan Street	EB	471	3	239	17	-49.3%	463.7%	88%	30%
	WB	293	6	489	14	66.9%	132.8%	13%	23%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
Curzon Street between Cardigan Street and New Canal Street	EB	516	4	31	0	-94.0%	-100.0%	39%	3%
	WB	280	8	659	17	135.4%	112.3%	3%	37%
New Canal Street between Curzon Street and Fazeley Street	NB	605	4	0	0	-100.0%	-100.0%	27%	0%
	SB	425	8	701	17	64.9%	113.2%	15%	34%
Banbury Street	EB	57	1	0	0	-100.0%	-100.0%	1%	0%
	WB	60	1	0	0	-100.0%	-100.0%	10%	0%
Andover Street	NB	178	0	179	0	0.6%	0.0%	23%	25%
	SB	145	0	208	0	43.4%	0.0%	21%	11%
Fazeley Street between Andover Street and New Canal Street	EB	269	7	421	9	56.5%	28.8%	15%	20%
	WB	260	5	1	0	-99.6%	-100.0%	23%	0%
Fazeley Street between New Canal Street and New Bartholomew Street	EB	138	3	0	0	-100.0%	-100.0%	27%	0%
	WB	202	4	22	0	-89.1%	-100.0%	10%	4%
New Bartholomew Street	SB	40	1	22	0	-45.4%	-100.0%	3%	2%
Bordesley Street between Oxford Street and New Canal Street/Meriden Street	EB	88	1	19	0	-78.3%	-100.0%	7%	1%
	WB	85	2	86	1	1.5%	-58.7%	7%	7%
Bordesley Street between New Canal Street and New Bartholomew Street	EB	103	5	4	0	-96.1%	-100.0%	13%	0%
	WB	20	1	39	1	95.0%	-0.2%	1%	2%
Meriden Street between Bordesley Street and B4100 Digbeth	NB	104	8	176	2	68.8%	-75.9%	8%	14%
	SB	313	11	78	8	-75.1%	-28.0%	24%	6%
B4100 between Meriden Street and Oxford Street	EB	1069	93	1031	91	-3.6%	-2.1%	39%	38%
	WB	686	92	575	89	-16.2%	-3.2%	12%	11%
B4100 between Park Street and Meriden Street	EB	1713	133	1396	121	-18.5%	-8.9%	29%	25%
	WB	1463	177	1387	172	-5.2%	-2.8%	44%	44%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	960	50	0	0	-100.0%	-100.0%	29%	0%
B4100 Park Street between Moor Street and Moat Lane	NB	930	175	982	170	5.6%	-2.8%	63%	63%
	SB	1093	130	903	119	-17.4%	-8.4%	54%	43%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
B4114 Moor Street Queensway between James Watt Queensway and Masshouse Lane	NB	1037	122	1044	113	0.7%	-7.4%	71%	71%
Masshouse Lane	EB	355	118	834	167	134.9%	41.5%	42%	76%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	821	93	825	84	0.5%	-9.6%	103%	104%
	SB	106	100	573	147	440.6%	47.0%	28%	69%
B4100 Moor Street	EB	310	75	885	118	185.5%	57.3%	88%	100%
	WB	806	38	872	33	8.2%	-13.2%	43%	46%

8.6.418 As per the 2026 assessment, the results of the tables above indicate that the permanent closure of B4114 Park Street to southbound traffic will locally result in vehicles rerouting to a combination of Masshouse Lane (westbound), B4100 Moor Street Queensway (southbound) and B4100 Moor Street (eastbound) or Curzon Street (westbound)/Cardigan Street and New Canal Street (southbound).

8.6.419 The local road network links forecast to experience an increase in flows greater than 10% in the city centre area with the Proposed Scheme are B4114 Jennens Road (between A4540 Lawley Middleway and Woodcock Street, eastbound, and between Cardigan Street and James Watt Queensway, eastbound), Cardigan Street (southbound), Curzon Street (between A4540 Lawley Middleway and Cardigan Street, westbound, and between Cardigan Street and New Canal Street, westbound), New Canal Street (between Curzon Street and Fazeley Street, southbound), Andover Street (northbound and southbound), Fazeley Street (between Andover Street and New Canal Street, eastbound), New Bartholomew Street (southbound), Bordesley Street (between New Canal Street and New Bartholomew Street, westbound), Meriden Street (between Bordesley Street and B4100 Digbeth High Street, northbound), B4100 Digbeth High Street (between Meriden Street and Oxford Street, eastbound), B4100 Park Street (between B4100 Moor Street and Park Lane, northbound), Masshouse Lane, B4100 Moor Street Queensway (southbound), and B4100 Moor Street (southbound and northbound).

- 8.6.420 Despite the re-routing of traffic through the local area and the above increases in flows, only B4100 Moor Street (southbound) and Cardigan Street (southbound) are expected to have a volume to capacity ratio of greater than 85% and which increases by more than 5% relative to the baseline.
- 8.6.421 As the traffic flow increases identified above extend out across the wider city centre area, generally the impacts reduce. However, substantial increases in two-way traffic flows have been identified on the following links in 2041:
- Floodgate Street, between Fazeley Street and Moore's Row, where traffic is forecast to increase by up to 73% in the AM (08:00-09:00) peak ;
  - Heath Mill Lane, between B4100 High Street Deritend and Alcock Street, where traffic is forecast to increase by around 12% in the AM (08:00-09:00) peak and 6% in the PM (17:00-18:00) peak ; and
  - Great Barr Street, between Derby Street and Fazeley Street, where traffic is forecast to increase by up to around 12% in the AM (08:00-09:00) peak and 15% in the PM (17:00-18:00) peak .
- 8.6.422 Based on the above assessment, the following key links/junctions have been identified for further detailed investigation:
- Cardigan Street/Curzon Street; and
  - B4100 Moor Street/B4114 Park Street.
- 8.6.423 In addition to the above junctions, further assessments of B4100 Moor Street Queensway/Masshouse Lane, B4100 Moor Street Queensway/James Watt Queensway and New Canal Street/Fazeley Street are also required. B4100 Moor Street Queensway/Masshouse Lane junction forms part of the primary diversionary route for traffic previously using B4114 Park Street, and is linked, via SCOOT, to the operation of the B4100 Moor Street Queensway/James Watt Queensway junction, which form part of the Moor Street Queensway gyratory. The New Canal Street/Fazeley Street junction is identified as it will be reconfigured as part of the Proposed Scheme, with the conversion of New Canal Street to southbound traffic only.
- 8.6.424 Commensurate with the finding of the 2026 assessment, the junctions on the local road network in the city centre that require further assessment for 2041 are:
- Cardigan Street/Curzon Street;
  - B4100 Moor Street/B4114 Park Street;
  - B4100 Moor Street Queensway Gyratory; and
  - New Canal Street/Fazeley Street.



*Washwood Heath*

- 8.6.425 The following tables summarise the 2041 link assessments conducted for the local road network in the Washwood Heath area.
- 8.6.426 Operational flows have been derived from traffic surveys and factored using TEMPRO growth factors to 2041. Traffic in this area associated with the Curzon Street station and Washwood Heath Depot in Phase Two has been added to the flows, and traffic associated with existing land uses at the depot has been removed from the network.

Table 8-422: Washwood Heath local road network 2041 future baseline and with the Proposed Scheme traffic – AM (08:00-09:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
Wolseley Drive	EB	94	12	2	2	-97.9%	-83.1%	8%	0%
	WB	185	9	35	2	-81.2%	-77.4%	16%	3%
Alstom Access Road south of the A47 Heartlands Parkway	NB	32	18	0	0	-100.0%	-100.0%	2%	0%
	SB	38	13	0	0	-100.0%	-100.0%	3%	0%
Aston Church Road	NB	492	52	492	52	0.0%	0.0%	38%	38%
	SB	716	62	716	62	0.0%	0.0%	55%	55%
Arley Road	NB	125	22	125	22	0.0%	0.0%	10%	10%
	SB	121	17	121	17	0.0%	0.0%	9%	9%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	450	93	449	93	-0.2%	0.0%	29%	29%
	SB	617	89	617	88	0.0%	-0.5%	40%	40%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	663	84	662	84	-0.2%	0.0%	43%	43%
	SB	835	89	835	88	0.0%	-0.5%	55%	55%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	108	16	108	16	0.0%	0.0%	8%	8%
	SB	50	19	50	19	0.0%	0.0%	4%	4%
Dorset Road between Arley Road and Pennine Way	EB	73	4	73	4	0.0%	0.0%	6%	6%
	WB	45	1	45	1	0.0%	0.0%	3%	3%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	1013	136	1015	136	0.3%	0.0%	66%	66%
	WB	1225	145	1231	145	0.5%	0.0%	80%	80%
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	1073	149	1076	149	0.2%	0.0%	70%	70%
	WB	1205	128	1210	128	0.5%	0.0%	79%	79%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	391	74	390	74	-0.4%	0.0%	30%	30%
	SWB	506	65	504	65	-0.5%	-0.7%	39%	39%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	472	34	472	34	0.0%	0.0%	36%	36%
	WB	570	24	570	24	0.0%	0.0%	44%	44%
Melvina Road	NB	881	81	881	81	0.0%	0.0%	98%	98%
	SB	729	102	729	102	0.0%	0.0%	81%	81%

Table 8-423: Washwood Heath local road network 2041 future baseline and with the Proposed Scheme traffic – PM (17:00-18:00) peak

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
Wolseley Drive	EB	175	4	32	2	-81.8%	-54.6%	15%	3%
	WB	91	12	2	2	-97.8%	-83.0%	8%	0%
Alstom Access Road south of the A47 Heartlands Parkway	NB	22	3	0	0	-100.0%	-100.0%	2%	0%
	SB	10	4	0	0	-100.0%	-100.0%	1%	0%
Aston Church Road	NB	851	45	851	45	0.0%	0.0%	65%	65%
	SB	643	34	643	34	0.0%	0.0%	49%	49%
Arley Road	NB	157	8	157	8	0.0%	0.0%	12%	12%
	SB	104	15	104	15	0.0%	0.0%	8%	8%
B4114 Washwood Heath Road between Aston Church Road and Arley Road	NB	674	68	669	68	-0.7%	0.0%	44%	44%
	SB	487	60	485	60	-0.4%	0.0%	32%	32%
B4114 Washwood Heath Road between Arley Road and Saltley Viaduct	NB	1092	60	1087	60	-0.4%	0.0%	71%	71%
	SB	819	62	817	62	-0.2%	0.0%	54%	53%
Pennine Way between Dorset Road and B4114 High Street (Saltley Viaduct)	NB	25	15	25	15	0.0%	0.0%	2%	2%
	SB	93	3	93	3	0.0%	0.0%	7%	7%
Dorset Road between Arley Road and Pennine Way	EB	19	1	19	1	0.0%	0.0%	1%	1%
	WB	80	0	80	0	0.0%	0.0%	6%	6%

Location	Direction	2041 future baseline		2041 With the Proposed Scheme traffic		With the Proposed Scheme % change from 2041 future baseline		VC ratio	
		All vehicles	HGV	All vehicles	HGV	All vehicles	HGV	2041 Baseline	2041 With the Proposed Scheme
B4114 Saltley Viaduct between Crawford Street and A47 Heartlands Parkway	EB	1165	103	1170	103	0.4%	0.0%	76%	76%
	WB	1095	92	1097	92	0.2%	0.0%	72%	72%
B4114 High Street (Saltley Viaduct) between Pennine Way and B4114 Washwood Heath Road	EB	1339	88	1343	88	0.4%	0.0%	87%	88%
	WB	1137	91	1140	91	0.2%	0.0%	74%	75%
B4145 Adderley Road between B4114 High Street and Duddeston Mill Road	NEB	608	31	603	31	-0.7%	0.0%	47%	46%
	SWB	430	21	428	21	-0.5%	0.0%	33%	33%
Duddeston Mill Road between Adderley Road and Melvina Road	EB	546	9	546	9	0.0%	0.0%	42%	42%
	WB	313	13	313	13	0.0%	0.0%	24%	24%
Melvina Road	NB	1193	59	1193	59	0.0%	0.0%	133%	133%
	SB	476	25	476	25	0.0%	0.0%	53%	53%

8.6.427 As per the 2026 assessment, compared to the 2041 future baseline, the tables above indicate that all local road network links in the Washwood Heath area will experience either no change or small reductions in traffic flows with the Proposed Scheme. The decrease in flows is due to the removal of traffic associated with the existing use of the Washwood Heath Depot site, which includes UK Mail. The traffic associated with the proposed depot will predominantly fall outside of the AM (08:00-09:00) and PM (17:00-18:00) peak hours and therefore will have no impact on the local road network during the peak hours.

8.6.428 Therefore, commensurate with the 2026 assessment, no junctions on the local road network in the Washwood Heath area require further assessment for 2041.

### Screenline assessment

8.6.429 As for 2026, an assessment of traffic flows across a screenline of key routes in the city centre has been undertaken. The screen line includes the key north-south routes through the city centre which would be affected by the closure of B4114 Park Street and converting New Canal Street to one way southbound, as shown in Figure 8-37. The results of the screenline assessment are shown in the following table for the 2041 AM (08:00-09:00) and PM (17:00-18:00) peak scenarios.

Table 8-424: 2041 screenline assessment

2041 AM (08:00-09:00) peak				
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2041 future baseline
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1933	2012	4.1%
	SB	2085	2099	0.7%
New Canal Street between Curzon Street and Fazeley Street	NB	490	0	-100.0%
	SB	551	689	25.0%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1144	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	792	800	1.0%
	SB	113	637	463.7%
A38 between Livery Street and Ludgate Hill	NB	4120	4150	0.7%
	SB	4052	4058	0.1%

2041 PM (17:00-18:00) peak				
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2041 future baseline
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1912	1962	2.6%
	SB	1767	1761	-0.3%
New Canal Street between Curzon Street and Fazeley Street	NB	605	0	-100.0%
	SB	425	701	64.9%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	960	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	821	825	0.5%
	SB	106	573	440.6%
A38 between Livery Street and Ludgate Hill	NB	4425	4453	0.6%
	SB	3854	3918	1.6%

- 8.6.430 Compared to the 2026 future baseline, the greatest percentage changes in traffic flows across the screenline as a result of the Proposed Scheme are expected on B4100 Moor Street Queensway (southbound) and New Canal Street (southbound). Only small increases in flow are expected on the A4540 and A38 across the screenline in the AM (08:00-09:00) and PM (17:00-18:00) peak.
- 8.6.431 The table above shows that B4100 Moor Street Queensway southbound is forecast to have highest number of additional vehicles in both the AM (08:00-09:00) peak and PM (17:00-18:00) peak, with approximately 400 additional vehicles in both periods. New Canal Street is also forecast to experience increases in flows, with approximately 200 additional vehicles in the AM (08:00-09:00) peak and approximately 500 additional vehicles in the PM (17:00-18:00) peak. The changes in flows on the A38 and A4540 are small with forecast increases of flows less than 100 vehicles.
- 8.6.432 It should be noted that although large percentage increases in flows are predicted on B4100 Moor Street Queensway in the southbound direction as a result of the closure of B4114 Park Street, this is partly due to the low baseline traffic flows on Moor Street Queensway. The forecast flows on B4100 Moor Street Queensway in the southbound direction with the Proposed Scheme are forecast to be 20% (AM peak) and 31% (PM peak) less in the southbound direction than in the northbound direction.

*Junction performance 2041 Phase Two***Ashted Circus**

- 8.6.433 The following table displays the results of applying traffic and changes associated with the Proposed Scheme to the 2041 future year baseline assessment at Ashted Circus.

Table 8-425: Ashted Circus modelling results - 2041 future baseline with the Proposed Scheme traffic

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Dartmouth Middleway (N)	1885	0.72	3	1825	0.71	3
A47 Nechells Parkway (E)	928	0.78	4	875	0.76	3
A4540 Lawley Middleway (S)	1743	0.65	2	1434	0.51	1
B4114 Jennens Road (W)	211	0.24	0	409	0.39	1
Total	4767		9	4543		8

17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Dartmouth Middleway (N)	1604	0.59	2	1489	0.56	1
A47 Nechells Parkway (E)	695	0.45	1	695	0.45	1
A4540 Lawley Middleway (S)	1478	0.49	1	1236	0.39	1
B4114 Jennens Road (W)	434	0.37	1	637	0.49	1
Total	4211		5	4057		4

- 8.6.434 As shown by the table above, Ashted Circus is expected to operate within capacity on all arms in 2041, with and without the Proposed Scheme. A maximum queue of 3 PCU is expected on the northern arm (A4540) with the Proposed Scheme. No interaction is expected with other junctions based on the predicted level of queuing. The results are comparable to the 2026 assessments.

**Curzon Circle**

- 8.6.435 The following table displays the results of applying traffic and changes associated with the Proposed Scheme to the 2041 future year baseline assessment at Curzon Circle.



Table 8-426: 2041 with the Proposed Scheme Curzon Circle modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Curzon Street	540	131	88	202	92	8
A4540 Lawley Middleway (N)	2379	188	178	2523	199	214
Vauxhall Road	799	185	221	800	198	248
A4540 Lawley Middleway (S)	2174	142	116	2264	160	138
Total	5892		603	5789		607
17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Curzon Street	728	128	112	260	86	11
A4540 Lawley Middleway (N)	1771	164	122	1970	177	200
Vauxhall Road	597	102	33	612	180	167
A4540 Lawley Middleway (S)	1966	163	166	2019	116	142
Total	5062		432	4861		520

8.6.436 The results above indicate that the performance of the junction deteriorates with the Proposed Scheme. In particular, it is anticipated that queuing on the northern (A4540) and eastern (Vauxhall Road) arms of the roundabout will increase in both the AM (08:00-09:00) and PM (17:00-18:00) peaks. However, the performance of Curzon Street arm will improve in both the AM (08:00-09:00) and PM (17:00-18:00) peaks, as will the A4540 Lawley Middleway (S) arm in the PM (17:00-18:00) peak. Queuing levels overall at the junction increase in both the AM (08:00-09:00) and PM (17:00-18:00) peaks with the delivery of the Proposed Scheme.

### Garrison Circus

8.6.437 The following table displays the results of applying traffic and changes associated with the Proposed Scheme to the 2041 future year baseline assessment at Garrison Circus.

Table 8-427: 2041 with the Proposed Scheme Garrison Circus modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Lawley Middleway (N)	2357	0.77	4	2391	0.76	3
Garrison Lane	525	0.80	4	525	0.72	3
A4540 Watery Lane Middleway (S)	1580	1.11	102	1557	1.03	49
Great Barr Street	498	1.88	220	503	2.15	211
Total	4960		330	4976		266

17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
A4540 Lawley Middleway (N)	2123	1.08	97	2089	1.04	62
Garrison Lane	577	1.01	19	517	0.95	10
A4540 Watery Lane Middleway (S)	1099	1.59	311	1124	1.50	268
Great Barr Street	590	1.00	19	721	1.21	86
Total	4389		446	4451		426

- 8.6.438 Compared to the 2041 future baseline, the operation of the junction is comparable or improved in terms of RFC, with the exception of Great Barr Street where queuing levels increase in the PM (17:00-18:00) peak. Potential blocking back to Bordesley Circus may occur in the PM (17:00-18:00) peak, based on the results of the modelling.

### Curzon Street/Cardigan Street

- 8.6.439 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2041 future year baseline assessment at Curzon Street/Cardigan Street.

Table 8-428: Curzon Street/Cardigan Street modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
Curzon Street	460	0.00	0	27	0.00	0
Cardigan Street	226	0.64	2	389	0.82	4
New Canal Street	361	0.00	0	507	0.00	0
Total	1047		2	923		4

17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity RFC	Max queue	Flow (all PCU)	Flow/capacity RFC	Max queue
Curzon Street	544	0.00	0	60	0.00	0
Cardigan Street	7	0.02	0	187	0.41	1
New Canal Street	330	0.03	0	548	0.00	0
Total	881		0	795		1

8.6.440 As per 2026, increased traffic flows are expected on Cardigan Street as a result of highway network changes and passenger demand associated with the Proposed Scheme. Consequently, increased queuing is expected at Cardigan Street relative to the future baseline, as indicated by the table above, with the arm operating close to capacity.

### Moor Street Queensway

8.6.441 The following table displays the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at B4100 Moor Street Queensway/James Watt Queensway and B4100 Moor Street Queensway/Masshouse Lane.

Table 8-429: Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway						
B4114 James Watt Queensway	1492	101	46	1337	104	46
B4114 Jennens Road	328	53	6	307	49	6
B4100 Moor Street Queensway	1089	101	22	1090	97	24
Moor Street Queensway/Masshouse Lane						
Priory Street Queensway	180	44	3	177	62	7
Masshouse Lane	334	39	4	905	72	12
B4100 Moor Street Queensway (S)	962	54	13	955	34	13
Total	4385		93	4771		107

17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Moor Street Queensway/James Watt Queensway						
B4114 James Watt Queensway	846	72	15	783	71	13
B4114 Jennens Road	678	72	13	465	53	8
B4100 Moor Street Queensway	1201	75	13	1155	63	16
Moor Street Queensway/Masshouse Lane						
Priory Street Queensway	171	44	3	175	68	7
Masshouse Lane	482	64	5	1013	72	21
B4100 Moor Street Queensway (S)	923	59	13	910	37	16
Total	4301		61	4501		80

- 8.6.442 The table above indicates that B4100 Moor Street Queensway (south) and the James Watt Queensway arms at the B4100 Moor Street Queensway /James Watt Queensway junction will operate over capacity with and without the Proposed Scheme. For the former there will be a reduction in the Degree of Saturation and queuing with the Proposed Scheme. All other arms are expected to operate within capacity, with a maximum increase in queuing of 16 PCU on the B4100 Moor Street Queensway (south) and Masshouse Lane arms in the 2041 PM (17:00-18:00) Peak, with the introduction of the Proposed Scheme.

### New Canal Street/Fazeley Street

- 8.6.443 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at New Canal Street/Fazeley Street.

Table 8-430: 2041 New Canal Street/Fazeley Street modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
New Canal Street (N)	610	65	12	766	40	5
Fazeley Street (E)	142	43	4	11	5	0
New Canal Street (S)	529	50	9	70	12	1
Fazeley Street (W)	457	65	10	0	0	0
Total	1738		34	847		6

17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
New Canal Street (N)	428	38	5	724	37	5
Fazeley Street (E)	268	50	6	1	1	0
New Canal Street (S)	608	50	9	220	37	2
Fazeley Street (W)	139	41	3	0	0	0
Total	1443		24	945		7

8.6.444 The table above indicates that the junction is forecast to operate within capacity in both the AM (08:00-09:00) and PM (17:00-18:00) peak with the Proposed Scheme, with queuing and delays predicted to be commensurate or improved on all arms of the junction, relative to the 2041 future baseline.

### **B4100 Moor Street/B4114 Park Street**

8.6.445 The following table summarises the results of applying traffic and changes associated with the Proposed Scheme to the 2026 future year baseline assessment at B4100 Moor Street/B4114 Park Street.

Table 8-431: 2041 Moor Street/Park Street modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Park Street (N)	820	38	17	1379	18	2
Car Park	1	1	0	2	1	0
Park Street (S)	1205	49	20	50	56	25
Moor Street	191	44	7	834	39	16
Total	2217		44	2265		42

17:00-18:00	2041 future baseline			2041 With the Proposed Scheme		
Approach (from)	Flow (all PCU)	Flow/capacity % DOS	Max queue	Flow (all PCU)	Flow/capacity % DOS	Max queue
Park Street (N)	925	52	23	1203	34	4
Car Park	14	10	1	27	20	1
Park Street (S)	1158	47	19	96	49	20
Moor Street	408	52	13	1038	48	21
Total	2505		55	2364		46

- 8.6.446 Compared to the 2041 future baseline, the performance of the B4114 Park Street (north) arm will improve following the closure of the B4114 Park Street link between Masshouse Lane and Bordesley Street. However, the re-routing of traffic means that queuing and delay will increase on the B4100 Moor Street and B4114 Park Street arms in both the AM (08:00-09:00) and PM (17:00-18:00) peaks. Overall, the junction will continue to operate within capacity with the Proposed Scheme.

### *Summary of highway assessment*

#### **Strategic network summary**

- 8.6.447 In terms of trip generation, the Proposed Scheme will result in a reduction of trips compared to the future baseline, as the future baseline includes major development proposals at the Curzon Street station site, including the Curzon Park and Eastside City Park Gate developments, which will be displaced by the Proposed Scheme. This impact is seen in both 2026 and 2041.
- 8.6.448 The implementation of Curzon Street station will require the closure of some roads locally. In particular, the closure of B4114 Park Street southbound and New Canal Street northbound will result in background traffic re-routing via the A4540 and via B4100 Moor Street Queensway, to travel northbound and southbound through the city centre.
- 8.6.449 An assessment of the impacts in 2026 and 2041 of the Proposed Scheme on the strategic road network has shown that the A4540 Lawley Middleway/Curzon Street junction at Curzon Circle will experience an impact from these changes, in relation to traffic flow and congestion.
- 8.6.450 Detailed modelling of Curzon Circle junction has been completed, to assess the scale of impact, and it indicated that queuing levels and delay will increase at Curzon Circle, particularly on the A4540 arms in the 2041 case, which could lead to increased interaction with Ashted Circus and Garrison Circus.
- 8.6.451 Modelling of Ashted Circus and Garrison Circus has indicated that Ashted Circus will continue to operate within capacity in 2026 and 2041 with the Proposed Scheme. At Garrison Circus, overall improvements in queuing and delay are expected with the Proposed Scheme, relative to the 2026 and 2041 future baselines. However, the junction is expected to operate over capacity, with the potential for blocking back to Bordesley Circus in the 2041 PM (17:00-18:00) peak.
- 8.6.452 Based on the results of the modelling, the requirement for mitigation at Curzon Circle and Garrison Circus has been identified. This is discussed later in this section of the report.

- 8.6.453 There are no substantial impacts on the strategic road network associated with the Washwood Heath Depot, as generally the traffic generated by the proposed depot will occur outside of the AM (08:00-09:00) and PM (17:00-18:00) peak periods, whilst the displacement of existing business activities at Wolseley Drive, to accommodate the Proposed Scheme, will result in a net reduction in trips travelling to and from the site.

### **Local road network summary**

- 8.6.454 In overall terms, the Proposed Scheme will result in a reduction of trips, compared to the 2026 and 2041 future baselines. However, the closure of roads locally, including the B4114 Park Street and alterations to New Canal Street will place an increased focus on certain roads for background through movements. This includes Masshouse Lane, B4100 Moor Street Queensway, B4100 Moor Street, New Canal Street (southbound) and Meriden Street, as shown by the results of the link assessment.
- 8.6.455 In terms of the local road network, links and junctions directly adjacent to the Curzon Street station, or parallel to proposed road closures, are those identified through the local link assessment to be affected by the Proposed Scheme. These include:
- Cardigan Street/Curzon Street;
  - B4100 Moor Street Queensway/James Watt Queensway;
  - B4100 Moor Street Queensway/Masshouse Lane; and
  - B4100 Moor Street/B4114 Park Street.
- 8.6.456 Modelling at these locations suggest that B4100 Moor Street /B4114 Park Street will operate within capacity in 2026 and 2041. However, at Curzon Street/Cardigan Street, Cardigan Street will be operating at its recommended capacity threshold in 2026 and may therefore require mitigation, whilst alterations to signal timings at B4100 Moor Street Queensway/James Watt Queensway and B41000 Moor Street Queensway/Masshouse Lane may be necessary to address changes in demand through this linked junction.
- 8.6.457 There will be no substantial impacts on the local network associated with the proposed Washwood Heath Depot, as generally the traffic generated by the depot occurs outside of the AM (08:00-09:00) and PM (17:00-18:00) peak periods.

### ***Accidents and safety***

- 8.6.458 The baseline safety analysis identified seven locations which had experienced nine or more Personal Injury Accidents over a three year period, these included:
- A47/Aston Church Road junction;
  - A47/B4114 Saltley Viaduct junction;

- A4540 Dartmouth Circus junction;
- B4100 Moor Street Queensway/Masshouse Lane junction;
- A4540 Garrison Circus;
- A4540 Bordesley Circus; and
- A4540 Camp Hill Circus.

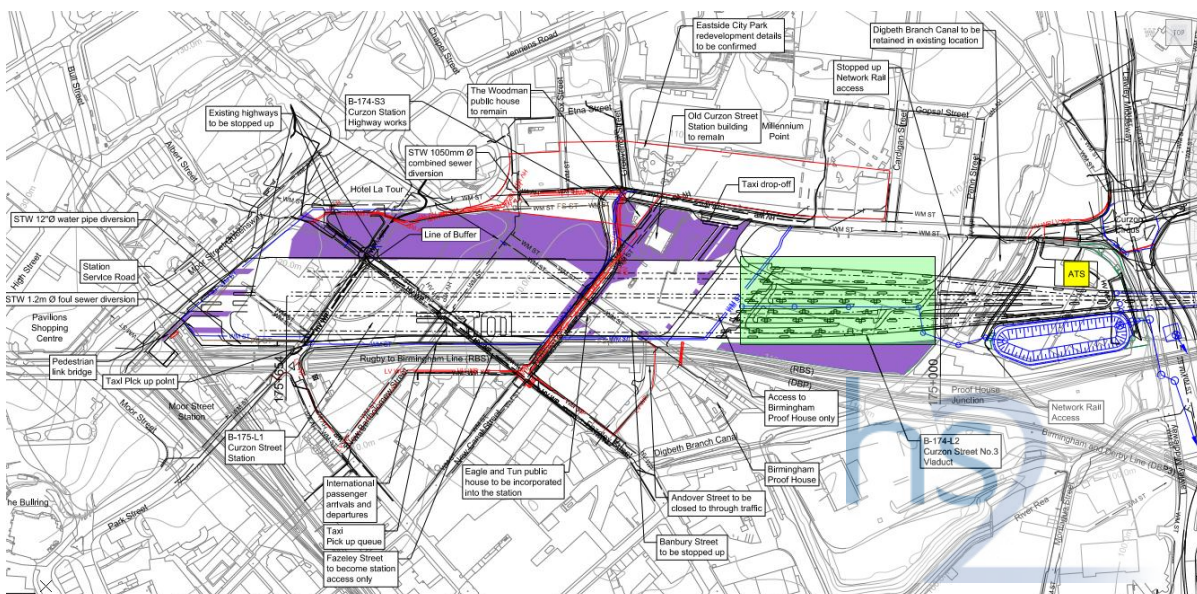
8.6.459 The operation of the Proposed Scheme will not result in flows greater than 5% at these locations, compared to the future baseline. Therefore, any increases in flows associated with the operation of the Proposed Scheme are not anticipated to exacerbate existing accident concerns. Many of the road links assessed will see a reduction in flows, which will result in reduced accident rates on these roads.

## Parking

### Short stay demand

8.6.460 The Proposed Scheme will increase car parking demand in the vicinity of the Curzon Street station, for short stay (including 'kiss and ride') and long stay car parking. As part of the Proposed Scheme design at Curzon Street Station, 60 short stay car parking spaces will be provided to cater for passengers being dropped and/or picked up by car. The short stay car park will be accessed via Curzon Street, with the figure below (area shaded green) showing the proposed location for this facility. The area shown will also provide spaces for staff car parking; however no long term car parking will be provided as part of the Proposed Scheme.

Figure 8-40: Proposed Curzon Street station design - short stay car park (annotated extract from Drawing C224-ARP-CV-DPL-040-226700)





8.6.461 The table below summarises the forecast passenger and vehicle demand for short stay drop-offs and pick-ups at the Curzon Street station in 2026 and 2041. The forecast number of passengers being dropped-off and picked-up has been derived by applying the modal share proportions derived from the NRTS and the Birmingham New Street station survey to the PLANET highway trips data. Furthermore, by applying the average vehicle occupancy rates for 'kiss and ride' to the passenger numbers, which have also been based on the results of the Birmingham New Street surveys, the resultant number of vehicles dropping-off or picking-up (to maintain order earlier in paragraph) passengers has also been forecast.

Table 8-432: Forecast drop-off and pick-ups at Curzon Street station

2026	Passengers			Vehicles		
	Boarders (drop offs)	Alighters (pick-ups)	Total	Boarders (drop offs)	Alighters (pick-ups)	Total
07:00-08:00	46	0	46	42	0	42
08:00-09:00	44	2	46	37	2	39
09:00-10:00	33	5	38	27	5	32
16:00-17:00	17	28	45	13	22	35
17:00-18:00	11	31	43	9	26	36
18:00-19:00	9	39	48	6	25	31
2041	Passengers			Vehicles		
	Boarders (drop offs)	Alighters (pick-ups)	Total	Boarders (drop offs)	Alighters (pick-ups)	Total
07:00-08:00	85	0	85	77	0	77
08:00-09:00	80	4	85	67	4	70
09:00-10:00	60	10	70	50	9	59
16:00-17:00	31	51	82	23	40	63
17:00-18:00	21	57	78	17	47	65
18:00-19:00	17	71	88	11	46	57

8.6.462 The table above shows that, in 2026, there will be 44 passengers dropped-off at the Curzon Street station by private vehicles during the AM (08:00-09:00) peak and 2 passengers picked-up. In the PM (17:00-18:00) peak, there will be 11 passengers dropped-off and 31 passengers picked-up. In 2041, there will be 80 passengers dropped-off during the AM (08:00-09:00) peak and 4 passengers picked-up. In the PM (17:00-18:00) peak, there will be 21 passengers dropped-off and 57 passengers picked-up.

- 8.6.463 In order to consider the potential accumulation of vehicles in the short stay car park over the AM (08:00-09:00) and PM (17:00-18:00) periods, the profile of vehicle arrivals and departures associated with drop-offs and pick-ups for Birmingham New Street station have been applied to the 2026 and 2041 forecast trip levels. The results are shown in the tables below for the AM (08:00-09:00) and PM (17:00-18:00) periods respectively in regards to maximum parking accumulation by hour.

Table 8-433: 2026 short stay car park demand

2026 AM (08:00-09:00)				2026 PM (17:00-18:00)			
Time Period	Arriving	Departing	Max. Parking Accumulation	Time Period	Arriving	Departing	Max. Parking Accumulation
07:00-08:00	42	42	25	16:00-17:00	35	35	28
08:00-09:00	39	39	30	17:00-18:00	36	36	33
09:00-10:00	32	32	32	18:00-19:00	31	31	39

\*Assumed that 20 vehicles are present in the short stay car park at 07:00 and 16:00

Table 8-434: 2041 AM (08:00-09:00) and PM (17:00-18:00) short stay car park demand

2041 AM (08:00-09:00)				2041 PM (17:00-18:00)			
Time Period	Arriving	Departing	Max. Parking Accumulation	Time Period	Arriving	Departing	Max. Parking Accumulation
07:00-08:00	77	77	25	16:00-17:00	63	63	33
08:00-09:00	70	70	32	17:00-18:00	65	65	41
09:00-10:00	59	59	38	18:00-19:00	57	57	51

\*Assumed that 20 vehicles are present in the short stay car park at 07:00 and 16:00

- 8.6.464 In 2026, the tables above indicate that a maximum of 32 spaces will be occupied in the AM (08:00-09:00) peak, with 39 spaces occupied in the PM (17:00-18:00) peak. In 2041, the tables above indicate that a maximum of 38 spaces will be occupied in the AM (08:00-09:00) peak, with 51 spaces occupied in the PM (17:00-18:00) peak. It has been assumed that 20 spaces will be occupied at the start of each peak hour. The results of the assessment indicate that the proposed provision for short stay car parking would be adequate for the forecast demand associated with the Proposed Scheme.

### Long stay demand

- 8.6.465 In addition to short stay car parking, there will also be demand for long stay car parking with the Proposed Scheme. No long term car parking is proposed as part of the scheme as there is existing car parking in and around the city centre. Also, BCC are keen not to promote commuter parking in the city centre.

- 8.6.466 A total of 61 passengers in the AM (08:00-09:00) peak and 55 passengers in the PM (17:00-18:00) peak will travel to or from the Curzon Street station by private car and will use local public long stay car park facilities, located in and around the vicinity of Curzon Street station. This will increase in 2041, with 112 passengers in the AM (08:00-09:00) peak and 82 passengers in the PM (17:00-18:00) peak travelling to or from the Curzon Street station by private car and using local public long stay car park facilities.

Table 8-435: Forecast long stay parking arrivals and departures

2026	Passengers			Vehicles		
	Boarders (drop offs)	Alighters (pick-ups)	Total	Boarders (drop offs)	Alighters (pick-ups)	Total
07:00-08:00	62	0	62	54	0	42
08:00-09:00	59	2	61	51	2	39
09:00-10:00	44	5	49	38	5	32
16:00-17:00	2	39	41	2	34	35
17:00-18:00	1	44	45	1	38	36
18:00-19:00	1	55	56	1	48	31
2041	Passengers			Vehicles		
	Boarders (drop offs)	Alighters (pick-ups)	Total	Boarders (drop offs)	Alighters (pick-ups)	Total
07:00-08:00	113	0	113	98	0	98
08:00-09:00	107	4	112	93	4	97
09:00-10:00	80	10	90	69	8	78
16:00-17:00	4	71	75	3	62	65
17:00-18:00	3	80	82	2	69	71
18:00-19:00	2	100	102	2	87	88

### Displaced demand

- 8.6.467 Implementation of the Proposed Scheme will result in the permanent loss of parking within the Washwood Heath to Curzon Street area, at nine locations. The table below summarises the expected loss of parking for the nine locations, which includes five business premises, three off-street parking areas, and one one-street parking area. There are other locations, where off-street car parking will be lost, but the businesses associated with the car parking spaces will be displaced to facilitate the Proposed Scheme and, therefore, the need for these spaces will not exist. Therefore these sites are not included in the table below.

Table 8-436: Permanent loss of parking spaces associated with delivery of the Proposed Scheme

Location	Business	Type	Parking spaces	Spaces lost
Fazeley Street	N/A	Pay and Display	8	8
St James Place (East)	West Midlands Fire Service	Staff Parking	250 (approx)	30
Viaduct St (South)	Freightliner	HGV Parking	120 (approx)	40 (approx)
Landor Street (North)	Crown International	HGV Parking	57 (approx)	31 (approx)
Network Park	E Cosway (UK) Ltd	Staff Parking	43	20
Network Park	Salts Medilink Distribution Centre	Staff Parking	10 (approx)	10 (approx)
		HGV Parking/Loading	3	1
Curzon Street Car Park	N/A	Pay and Display	500 (approx)	500 (approx)
Seymour Street Surface Level Car Park	N/A	Pay and Display	40 (approx)	40 (approx)
Albert Street Surface Level Car Park	N/A	Pay and Display	200 (approx)	200 (approx)

8.6.468 The primary loss of parking in the Washwood Heath to Curzon Street area will occur from the construction of the Curzon Street station, with the permanent loss of 800 existing public car parking spaces and eight designated on-street 'pay and display' spaces.

8.6.469 The majority of lost car parking spaces (500) will be associated with temporary car parking consents at the Curzon Street Car Park, which would have been removed in any event as part of the Curzon Park development. The baseline survey data indicated that the utilisation of these spaces was only in the order of 50%-60% and, therefore, displaced demand is likely to be up to 300 vehicles.

8.6.470 The closest alternative car park is likely to be the recently constructed Millennium Point Car Park, which contains 899 spaces. The baseline surveys indicated a utilisation level in the order of 60%. This suggests that up to 360 spaces may be available to accommodate displaced demand, although this is likely to reduce following the opening of Birmingham City University city centre campus.

8.6.471 However, there are over 4,000 further car parking spaces in close proximity to the Curzon Street station, including the Bullring Moor Street, Albert Street, Bullring Centre and Edgbaston Street multi-storey car parks. The combination of these facilities, together with the Millennium Point multi storey car park, would offset the impacts associated with displaced demand from the Curzon Street station.

- 8.6.472 Hs2 Ltd will work with the businesses affected to identify opportunities where reasonably practicable to mitigate impacts on parking.

### *Rail*

- 8.6.473 As a result of the Proposed Scheme, rail passengers in Birmingham and the West Midlands will benefit from an increase in rail capacity and from improved journey times between Birmingham and London. There will also be benefits to local commuters of released capacity on the existing rail network. Comparing 2026 to 2041, the primary benefit will be increased frequency and increased national rail destinations on the Proposed Scheme network.
- 8.6.474 The impact on long distance rail movements to/from the West Midlands at Birmingham New Street station is estimated based on outputs from PLANET Framework Model (PFM). PFM provides forecast traffic flows for long distance rail movements at Birmingham New Street station (that have either an origin or destination within the West Midlands). The passenger forecasts indicate that in the 2026 Phase One there will be a reduction of 33% in long distance rail trips at New Street, as trips transfer to Hs2. In the 2041 Phase Two scenario the impact is larger with a reduction of 48% of long distance trips. This is due to the increased number of destinations served by Phase Two of the scheme, as services to the north of England are introduced as well as London.
- 8.6.475 In terms of the impacts on the rail network, the approach outlined in the West Midlands methodology section was used for the assessment. In summary this involved combining the PLANET outputs in terms of the Proposed Scheme trips, strategic rail trips and local rail trips, in order to produce the proportionate increase in rail trips in 2026 and 2041 with Hs2. The results of this analysis are shown in Figure 8-41 to Figure 8-44 below in terms of total number of rail trips on the rail network and the percentage increase in trips on the network in 2026 (Phase One) and 2041 (Phase Two) in the AM (08:00-09:00) Peak period.



Figure 8-41: 2026 AM (08:00-09:00) peak rail passenger forecasts - with Hs2 (Phase One), passenger trips

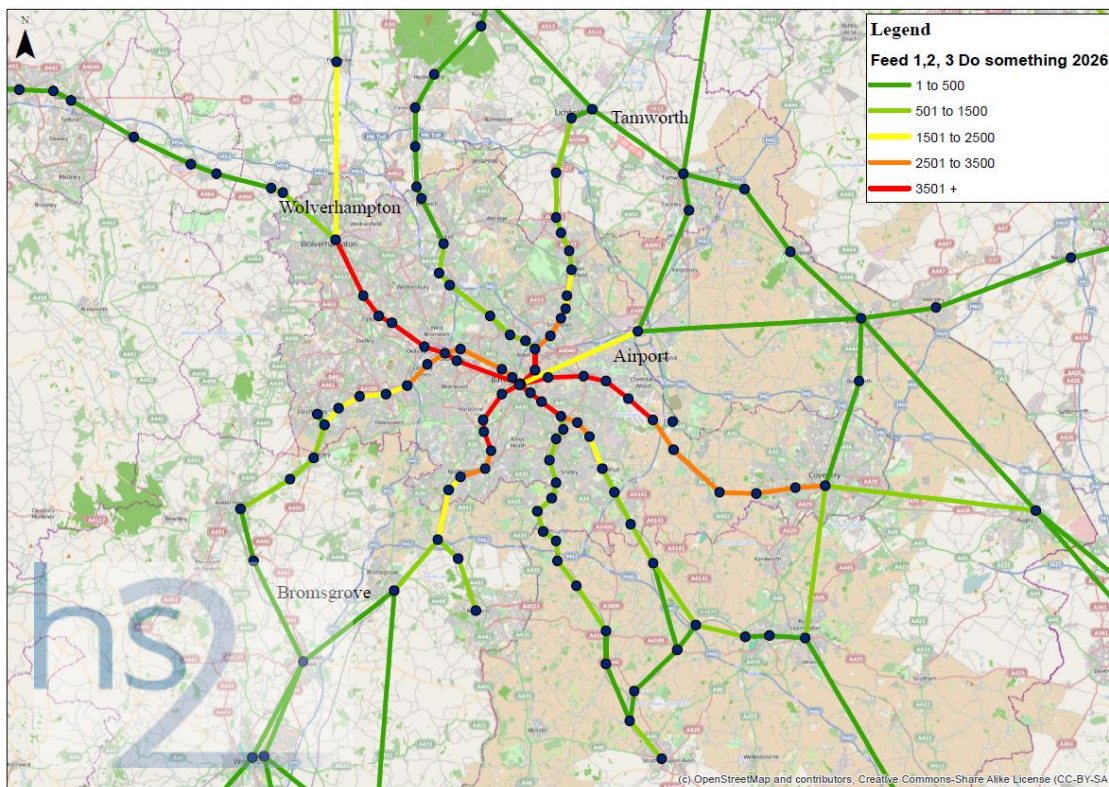


Figure 8-42: 2041 AM (08:00-09:00) peak rail passenger forecasts - with Hs2 (Phase Two), passenger trips

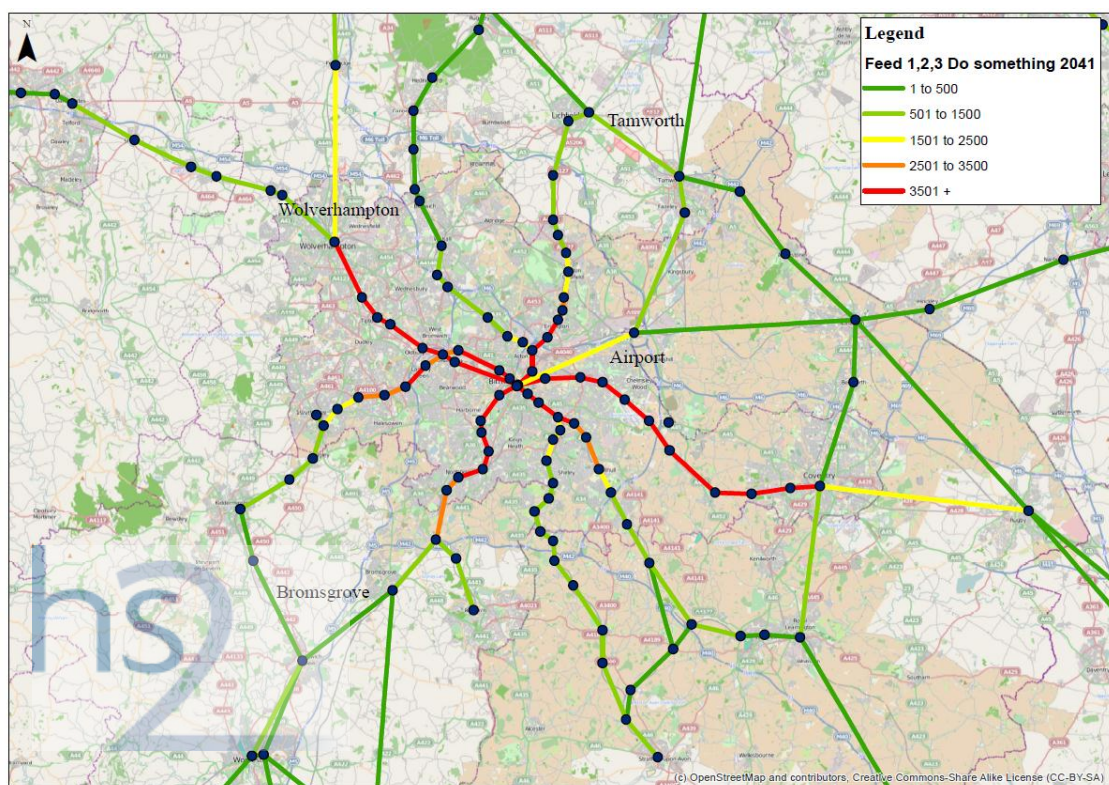




Figure 8-43: 2026 AM (08:00-09:00) peak rail passenger forecasts - with Hs2 (Phase One) % change from Future Baseline

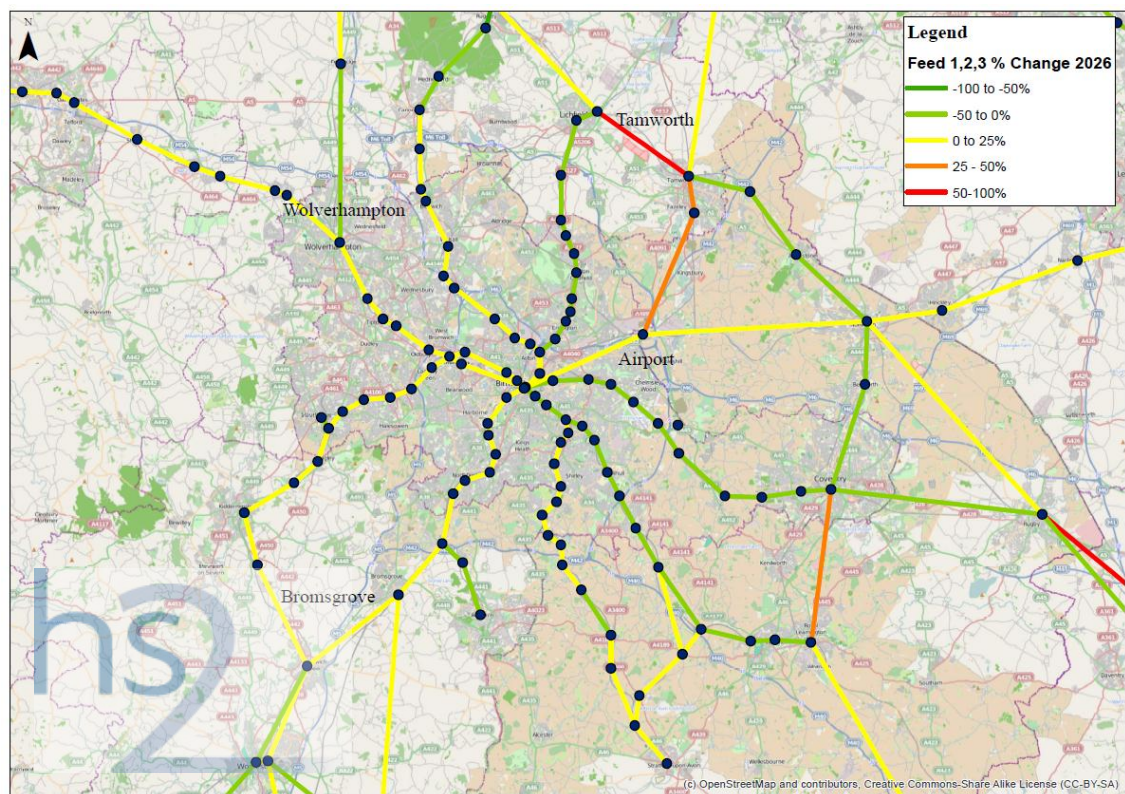
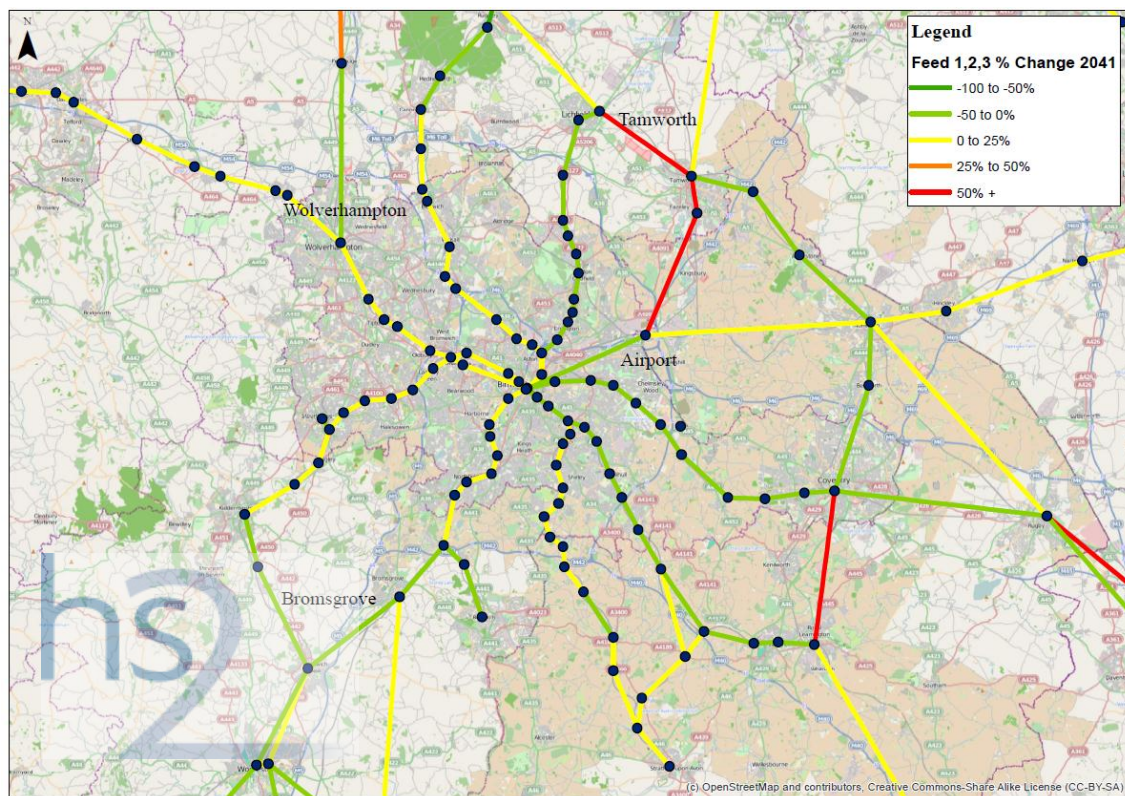


Figure 8-44: 2041 AM (08:00-09:00) peak rail passenger forecasts - with Hs2 (Phase Two) % change from future baseline



- 8.6.476 The above figures show the percentage change in passenger trips between the future baseline and with Hs2 scenario. The results show that the Rugby to Birmingham line, Chiltern line (from Solihull) and Lichfield lines are forecast to observe a reduction in passenger demand due to switching of trips to the Proposed Scheme.
- 8.6.477 On some lines (including Leamington Spa to Coventry and the links to Tamworth) there is forecast to be an increase due to additional trips accessing the Proposed scheme leading to an increase in demand on lines that have relatively low overall demand in the future baseline scenario.
- 8.6.478 The majority of links show an increase in demand of less than 5% when the 'with Hs2' scenario demand is compared with the future baseline scenario.

### **Impacts at Moor Street station**

- 8.6.479 This section summarises the analysis undertaken to assess the impact of the Proposed Scheme on Moor Street station. The impacts include those on the current platforms and the proposed passageway connection between Curzon Street station and Moor Street station. The assessment has been undertaken using guidance provided by Network Rail in their Station Capacity Assessment Guidance and also further guidance provided by TfL in their Good Practice Guide - Station Planning, Standards and Guidelines, and through consultation with Network Rail.
- 8.6.480 Consideration has been given to the impact of additional passengers associated with the Proposed Scheme on the platform operation at Moor Street Station. This assessment in particular considers the impact of Platform 1 which is considered to be the constraint at Moor Street Station.
- 8.6.481 The following assumptions have been agreed with Network Rail for the purpose of this assessment and have been adopted:
- Boarding and alighting data has been provided by Centro for the period April 2012-October 2012. The data provided is a single day survey in each month and includes total boarders and alighters at Moor Street Station by direction and train. Boarding and alighting data has been provided for full platform and is not at carriage level. The assessment has therefore been conducted at platform level. Boarders are assumed to arrive at a uniform rate over a period of 10-minutes prior to the train arrival. Alighters are assumed to disperse at a uniform rate over a period of 3-minutes prior to the train arrival. This provides a cumulative profile of passengers waiting to board trains which use Moor Street Station.
  - The Network Rail West Midlands and Chilterns Route Utilisation Strategy (RUS) has been used to identify growth in rail demand. The RUS shows that rail demand in Birmingham is forecast to grow by around 2.3% per annum to 2020. This growth projection has been adopted. Growth beyond 2020 is not detailed in the RUS. For the purposes of this assessment, growth of 1.5% per



annum from 2021-2026 and growth of 1.0% per annum from 2026-2041 has been assumed.

- Operational length of Moor Street is taken as 207m.
- Average width is taken as 3.3m. There are areas where the average width exceeds with localised pinch-points however 3.3m is considered to provide an appropriate estimate for platform width.
- Yellow line (1.5m), activity zone (minimum 0.3m) and circulation zones (minimum 1.0m) have been assumed.
- Platform waiting zone width is therefore taken as:
- Waiting Zone Width = Width – Yellow Line Zone – Activity Zone – Circulation Zone
- Waiting Zone Width = 3.3m – 1.5m – 0.3m – 1.0m = 0.5m
- Waiting Zone Area = Waiting Zone Width x Operational Length
- Waiting Zone Area = 0.5 x 207m = 103.5m<sup>2</sup>
- The “waiting zone” should be sufficiently sized to accommodate all waiting passengers at a maximum average peak minute density, equivalent to 0.65m<sup>2</sup> per person.
- Assessment of the waiting zone has been based on the maximum peak minute boarding demand for the AM (08:00-09:00) and PM (17:00-18:00) peak periods based on the Centro survey data.
- the Proposed Scheme demand forecasts have been taken from Tables x-x above.

8.6.482 The tables below summarise the:

- maximum (overall maximum of all survey days) and average maximum (average of the individual survey day maximum values) peak minute passengers waiting to board demand for Platform 1 during the AM (08:00-09:00) and PM (17:00-18:00) peak period based on the Centro survey data; and
- pedestrian densities on Platform 1 based on the demands, and shows the available area per person on Platform 1 in the AM (08:00-09:00) Peak and PM (17:00-18:00) Peak for the maximum and average maximum flows. A value of less than 0.65m<sup>2</sup> per person indicates that the capacity threshold has been exceeded.

Table 8-437: Moor Street Platform 1 peak minute passengers waiting to board demand; 2012

<b>Passengers waiting to Board (2012 Baseline)</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
Average Maximum Minute Flow	117	158
Max Minute Flow	140	184

Table 8-438: Moor Street Platform 1 peak minute density (area per person, sqm); 2012

<b>Platform 1 Passenger Density (2012 Baseline)</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
Average Maximum Minute Flow	0.88	0.66
Max Minute Flow	0.74	0.56

Table 8-439: Moor Street Platform 1 peak minute passengers waiting to board demand; 2026

<b>Passengers waiting to Board (2026 future baseline)</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
Average Maximum Minute Flow	149	201
Max Minute Flow	178	235

Table 8-440: Moor Street Platform 1 peak minute density (area per person, sqm); 2026

<b>Platform 1 Passenger Density (2026 future baseline)</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
Average Maximum Minute Flow	0.69	0.51
Max Minute Flow	0.58	0.44

Table 8-441: Moor Street Platform 1 peak minute passengers waiting to board demand; 2041

<b>Passengers waiting to Board (2041 future baseline)</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
Average Maximum Minute Flow	166	225
Max Minute Flow	199	262

Table 8-442: Moor Street Platform 1 peak minute density (area per person, sqm); 2041

<b>Platform 1 Passenger Density (2041 future baseline)</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
Average Maximum Minute Flow	0.62	0.46
Max Minute Flow	0.52	0.40

8.6.483 The above tables show that Platform 1 is seen to operate at close to the maximum density levels in the AM (08:00-09:00) peak period and at or over the maximum density levels in the PM (17:00-18:00) peak period. The tables also show that Platform 1 at Moor Street Station is forecast to regularly exceed the maximum density requirements even in the absence of the Proposed Scheme.

8.6.484 Whilst it is difficult to predict the future rail provision at Moor Street Station, the existing service pattern provides a basis for assessing the potential additional demand that could be expected as a result of the Proposed Scheme at Moor Street Station. In order to evaluate this, the following assumptions have been made:

- During the AM (08:00-09:00) peak period, there are presently 8 trains per hour with an average headway of 7.5 minutes per train.
- During the PM (17:00-18:00) peak period, there are presently 11 trains per hour with an average headway of 5.5 minutes per train.
- Not all of the Proposed Scheme generate demand will utilise Platform 1. It has been assumed that 40% of the Proposed Scheme demand will use Platform 1 with the remaining 60% split over Platform 2 and 3.

8.6.485 The table summarises the maximum additional trips that the Proposed Scheme would generate during the peak periods based on the peak minute boarder flows identified in the tables above.

Table 8-443: Moor Street Platform 1 maximum the Proposed Scheme passengers waiting to board services from Moor Street

<b>Platform 1 the Proposed Scheme Passenger Demand</b>	<b>AM peak hour</b>	<b>PM peak hour</b>
2026 Phase One	9	10
2041 Phase One	13	15
2041 Phase Two	31	34

8.6.486 The tables below show how the additional demand compares with the baseline flows and the change in platform density, where a value of less than 0.65m<sup>2</sup> per person indicates that the capacity threshold has been exceeded.

Table 8-444: Moor Street Platform 1 maximum demand and peak minute density, 2026

<b>Moor Street Platform Capacity Assessment</b>	<b>2026 future baseline</b>		<b>2026 Phase One</b>		
	<b>Demand</b>	<b>Density</b>	<b>the Proposed Scheme Demand</b>	<b>Total Demand</b>	<b>Density</b>
AM Peak	178	0.58	9	187	0.55
PM Peak	235	0.44	10	245	0.42

Table 8-445: Moor Street Platform 1 maximum demand and peak minute density, 2041 Phase One

<b>Moor Street Platform Capacity Assessment</b>	<b>2041 future baseline</b>		<b>2041 Phase One</b>		
	<b>Demand</b>	<b>Density</b>	<b>the Proposed Scheme Demand</b>	<b>Total Demand</b>	<b>Density</b>
AM Peak	199	0.52	13	212	0.48
PM Peak	262	0.40	15	277	0.37

Table 8-446: Moor Street Platform 1 maximum demand and peak minute density, 2041 Phase Two

<b>Moor Street Platform Capacity Assessment</b>	<b>2041 future baseline</b>		<b>2041 Phase Two</b>		
	<b>Demand</b>	<b>Density</b>	<b>the Proposed Scheme Demand</b>	<b>Total Demand</b>	<b>Density</b>
AM Peak	199	0.52	31	230	0.45
PM Peak	262	0.40	34	296	0.35

- 8.6.487 The above tables show that the inclusion of the Proposed Scheme related trips has little impact on the operation of Platform 1 which is expected to exceed the criteria for the maximum density even without the Proposed Scheme. It should be noted that the forecast growth in passenger demand at Moor Street is far greater than the predicted demand that will be generated by the Proposed Scheme, as is summarised in the table below.

Table 8-447: Moor Street Platform 1 comparison of growth and the Proposed Scheme demand

	2012 Demand	2012-2026 Growth	2026 the Proposed Scheme Phase One	2012-2041 Growth	2041 the Proposed Scheme Phase One	2041 the Proposed Scheme Phase Two
AM Peak	140	38	9	59	13	31
PM Peak	184	51	10	78	15	34

- 8.6.488 It should also be noted that the assessment undertaken has taken no account of existing passengers at Moor Street Station who may transfer to Curzon Street Station for trips between Birmingham and London. The potential level of this impact is not known at this stage but would provide some release of capacity on Platform 1.

### *Local bus and coach services*

#### **Local bus impact**

- 8.6.489 Using cordon count passenger count data supplied by Centro, growth factors taken from Trip End Model Program (TEMPO, DfT) were applied to produce passenger forecasts for 2026 and 2041. Analysis of the growth factors outputs from TEMPO showed slight reduction in bus trips to 2026 and 2041 and therefore, no background growth adjustment was made to the cordon data.
- 8.6.490 The Hs2 demand forecasts for those trips accessing the scheme by public transport (split by cordon and access mode) were applied to the cordon count data in order to produce 2026 and 2041 forecast bus patronage demand for each corridor, including the impact of Hs2. These are shown in Table 8-448.

Table 8-448: the Proposed Scheme bus demand and capacity (08:00 to 09:00 bi-directional)

Route	Total available bus seats (inbound and outbound 08:00 to 09:00 in 2026 and 2041 based on 2011 capacities)	the Proposed Scheme Demand (inbound and outbound 08:00 to 09:00)	
		2026	2041
A34	1586	94	95
A34 High Street	1738	18	22
A38M	1988	124	148
A41	2676	37	47
A45	2154	20	26

Route	Total available bus seats (inbound and outbound 08:00 to 09:00 in 2026 and 2041 based on 2011 capacities)	the Proposed Scheme Demand (inbound and outbound 08:00 to 09:00)	
		2026	2041
A456	1714	45	117
A47	1049	38	40
A441/A38	1084	105	262

8.6.491 The table above shows that there is sufficient bus capacity available in both 2026 and 2041 to accommodate any additional public transport trips due to the Proposed Scheme.

8.6.492 As outlined in earlier in this report the A47 corridor may have standing room only available on some inbound AM (08:00-09:00) peak services. Therefore additional bus services may be required on this route, but as this is an existing capacity issue, additional services may be required with or without the Proposed Scheme.

### **Moor Street Queensway**

8.6.493 Based on the Proposed Scheme demand forecasts there will be approximately an additional 500 two way bus passenger trips generated by Hs2 in the AM (08:00-09:00) Peak (08:00-09:00) in 2026 and 750 in 2041 (Phase Two). There are currently over 100 bus services per hour operating on Moor Street Queensway in the peak hour. Therefore, the forecast impact of Hs2 is in the range of an additional 5-7 passengers per bus service. The impact of these passengers on pedestrian flows on Moor Street Queensway is considered under Public Transport Interchange below.

### **Permanent bus diversions**

8.6.494 With the delivery of the Proposed Scheme, B4114 Park Street will be closed between Masshouse Lane and Shaws Passage. Seven bus services, currently routeing along B4114 Park Street, will therefore need to be diverted along Masshouse Lane and B4100 Moor Street Queensway to use existing stops on B4100 Moor Street Queensway. The allocation of stops will need to be agreed with BCC and Centro prior to the closure of B4114 Park Street. Further details of the affected bus routes are provided below:

- Service No 17: National Express West Midlands, Birmingham to Tile Cross;
- Service No 58: National Express West Midlands, Birmingham to Solihull (via Sheldon);
- Service No 59: National Express West Midlands, Birmingham to Kingshurst;
- Service No 60: National Express West Midlands, Birmingham to Sheldon;
- Service No 97: National Express West Midlands, Birmingham to Chelmsley Wood;

- Service No 900 - National Express West Midlands, Birmingham to Coventry (via Birmingham Airport, Meriden); and
- Service No 957: National Express West Midlands, Birmingham to Solihull (via Coventry Road, Old Lode Lane).

8.6.495 The bus routes will be diverted by a distance of approximately 200m, which would represent an increase in journey time of approximately 26 seconds, with details for the seven bus routes that are likely to be impacted summarised in the table below. The diversion of these services is expected to have a minimal impact on existing services on Moor Street Queensway. The impacts in 2026 and 2041 are expected to be the same.

Table 8-449: Diversion of bus routes associated with the permanent closure of Park Street

Bus route	Hourly service level	Diversion distance (m)	Additional journey time (seconds)
17	7	200	26
58	2	200	26
59	2	200	26
60	4	200	26
97	6	200	26
900	4	200	26
957	4	200	26

### Coach

8.6.496 The construction of the Proposed Scheme will result in the closure of New Canal Street to northbound traffic and Park Street to southbound traffic. The former currently forms a primary through route for coaches travelling to and from the Digbeth Coach Station to connect to/from the A4540. Coaches will therefore have to divert either via Moor Street Queensway and the B4114 Jennens Road, or via the B4100 and Great Barr Street. However, the total increased journey time is expected to be minimal if travelling via Moor Street Queensway, at one minute, with commensurate travel distances.

### *Public transport interchanges 2026 and 2041*

#### **Moor Street Queensway Interchange**

8.6.497 The table below provides a summary of the predicted level of pedestrians, including bus passengers and rail-rail interchangers, which will travel to and from Curzon Street Station in 2026 and 2041. The trip generation associated with the Proposed Scheme has been detailed in earlier in this section of the report.

Table 8-450: Total pedestrians arriving/departing Curzon Street station (16 hour flows)

Year	Peak hour	To station	From station	Total
2026	AM Peak	1130	435	1565
	PM Peak	548	1129	1677
2041	AM Peak	3119	1193	4311
	PM Peak	1512	3097	4609

8.6.498 A Level of Service (LoS) assessment has been undertaken for the pedestrian facilities on Moor Street Queensway in order to understand the impacts arising on Moor Street Queensway from increased pedestrian movements associated with the Proposed Scheme.

8.6.499 The figures below show the forecast pedestrian movements with the Proposed Scheme, in 2026 and 2041 Phase Two, on each section of Moor Street Queensway and across each crossing on Moor Street Queensway. The flows represent the peak hour totals flows, and represent the total pedestrian movements in a section or across a crossing.

Figure 8-45: Forecast pedestrian flows on Moor Street Queensway - AM (08:00-09:00) Peak 2026 with the Proposed Scheme

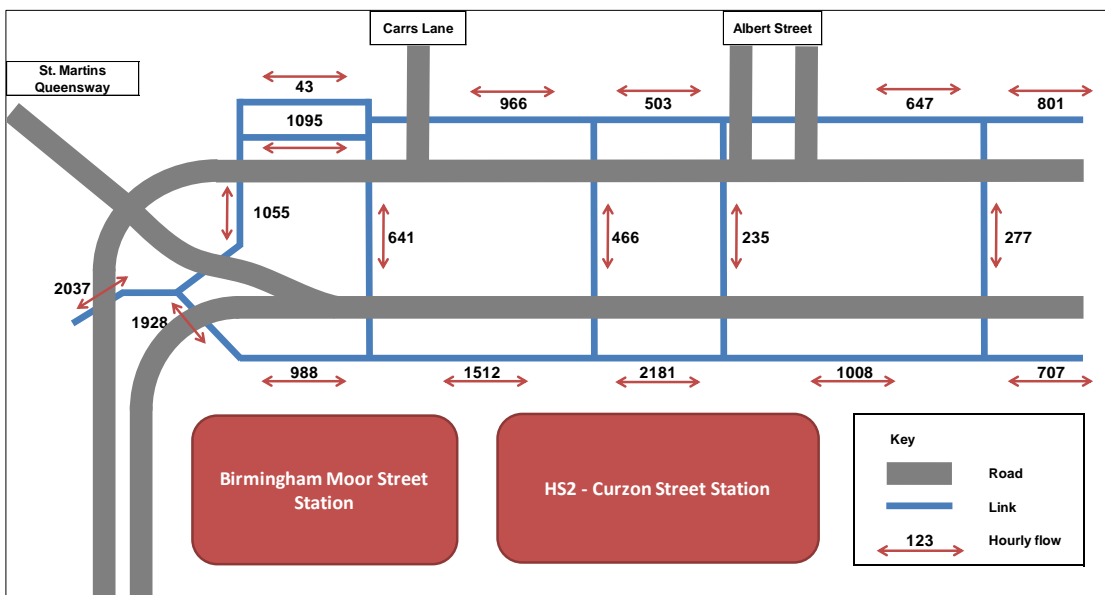


Figure 8-46: Forecast pedestrian flows on Moor Street Queensway - PM (17:00-18:00) Peak 2026 with the Proposed Scheme

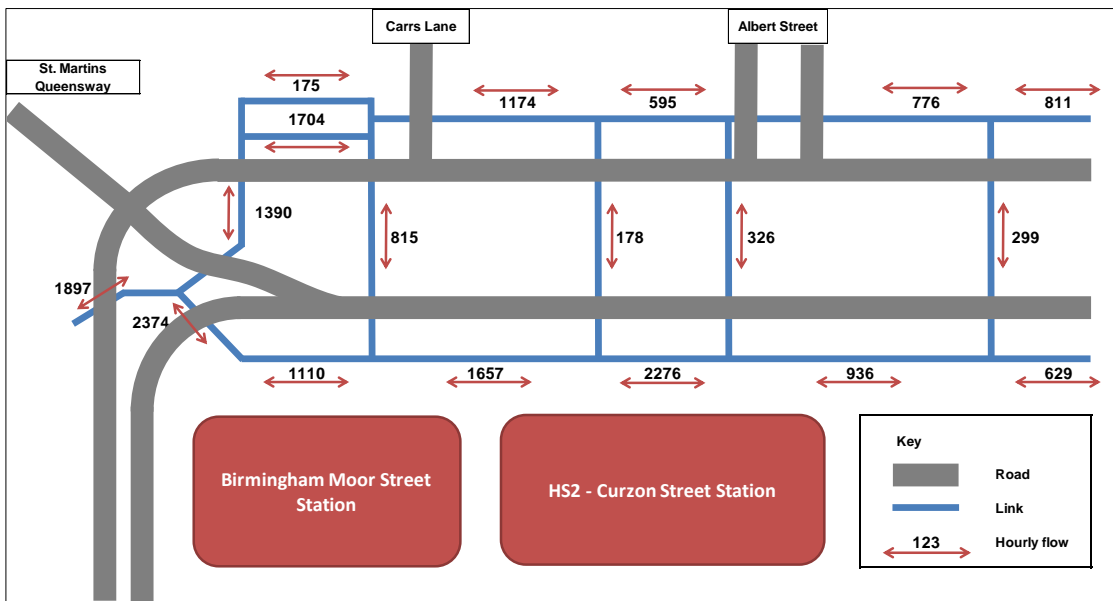


Figure 8-47: Forecast pedestrian flows on Moor Street Queensway - AM (08:00-09:00) Peak 2041 with the Proposed Scheme

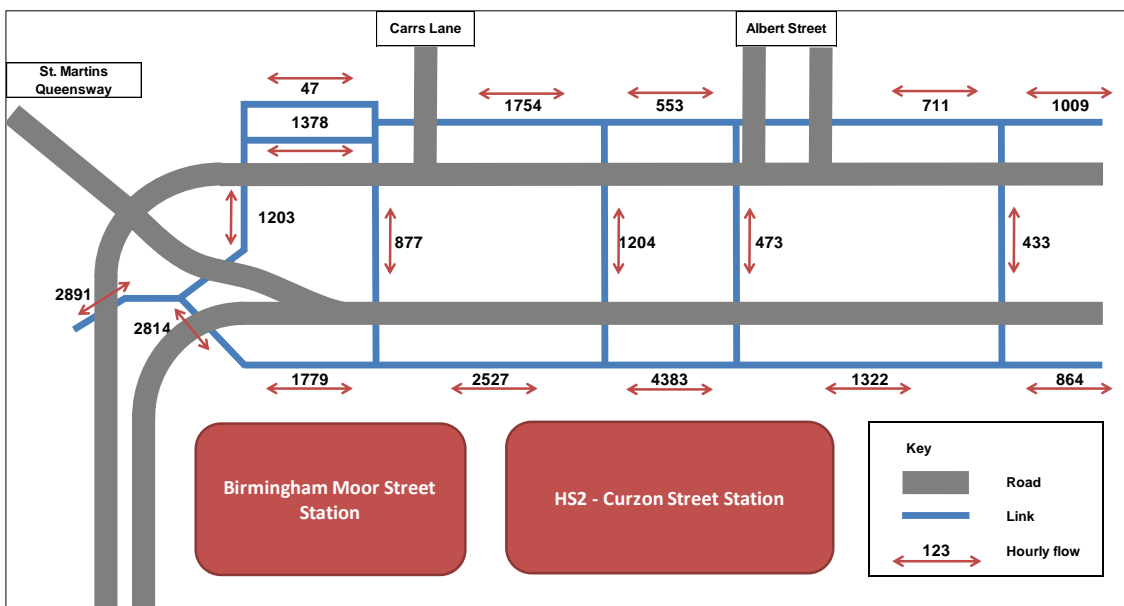
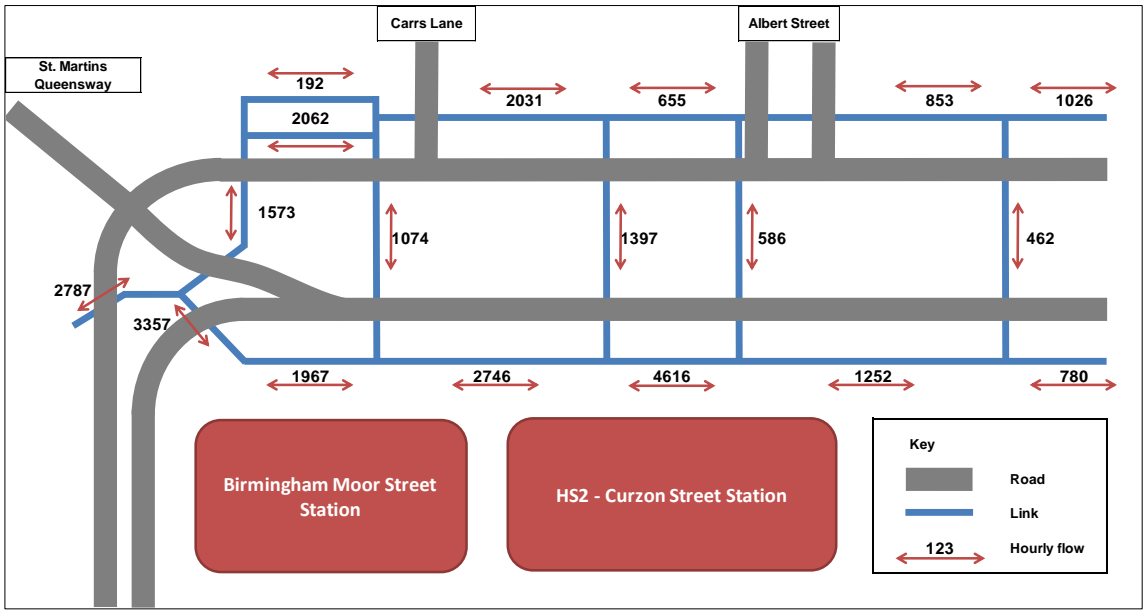


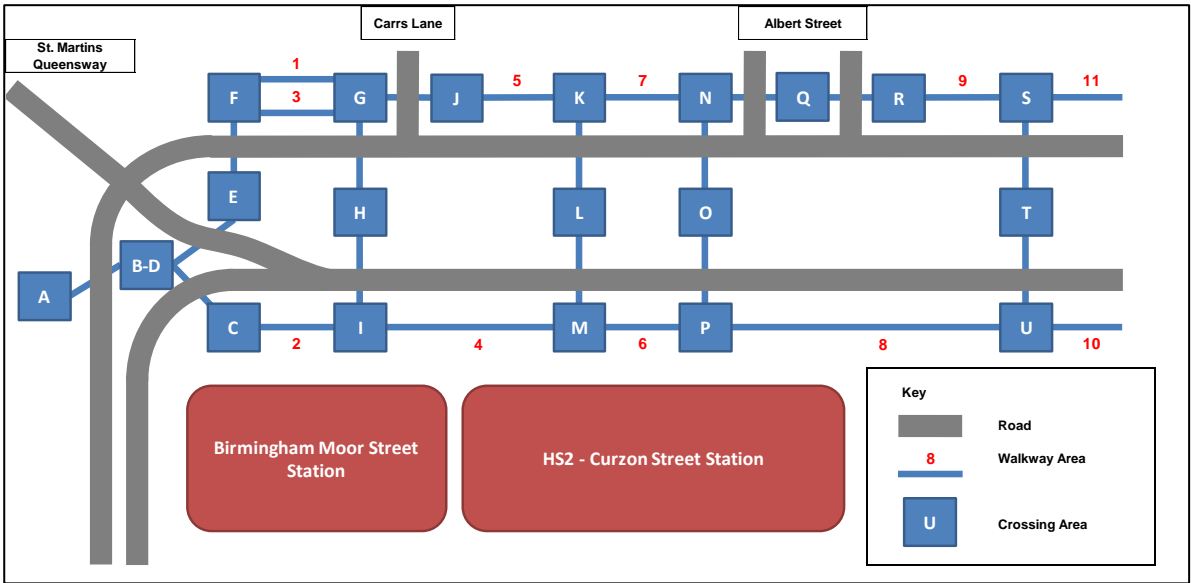


Figure 8-48: Forecast pedestrian flows on Moor Street Queensway - PM (17:00-18:00) Peak 2041 with the Proposed Scheme



8.6.500 The figure below illustrates the scope of the pedestrian assessment, and provides references for the crossing waiting areas and pedestrian walkway areas assessed.

Figure 8-49: Pedestrian assessment study area



8.6.501 The tables below show the Level of Service of footways and pedestrians crossings on Moor Street Queensway with the Proposed Scheme in 2026 and 2041 respectively.

Table 8-451: 2026 pedestrian interchange assessment for Moor Street Queensway

Areas	2026 Future Baseline with the Proposed Scheme Traffic					
	AM			PM		
	Max Ped per/min	Density (ped/sqm)	LOS	Max Ped per/min	Density (ped/sqm)	LOS
1	1	0.01	A	5	0.03	A
2	24	0.06	A	26	0.07	A
3	35	0.12	A	53	0.18	A
4	35	0.21	A	34	0.20	A
5	9	0.08	A	11	0.10	A
6	70	0.32	B	74	0.33	B
7	19	0.06	A	19	0.06	A
8	36	0.13	A	31	0.11	A
9	16	0.13	A	14	0.12	A
10	16	0.08	A	16	0.08	A
11	17	0.10	A	14	0.09	A
A	6	0.36	B	7	0.27	A
B	28	0.75	A	27	0.72	A
B+D	40	0.35	A	47	0.42	A
C	39	0.90	B	36	0.82	A
D	13	0.16	A	20	0.27	A
E	20	0.36	A	20	0.35	A
F	6	0.13	A	8	0.21	A
G	14	0.15	A	18	0.20	A
H	16	0.12	A	20	0.14	A
I	7	0.15	A	11	0.19	A
J	5	0.08	A	5	0.10	A
K	5	0.11	A	7	0.15	A
L	12	0.17	A	5	0.07	A
M	10	0.16	A	13	0.21	A
N	5	0.05	A	6	0.06	A
O	7	0.15	A	10	0.23	A
P	7	0.14	A	7	0.15	A
Q	14	0.41	A	12	0.34	A
R	4	0.06	A	4	0.06	A

Areas	2026 Future Baseline with the Proposed Scheme Traffic					
	AM			PM		
	Max Ped per/min	Density (ped/sqm)	LOS	Max Ped per/min	Density (ped/sqm)	LOS
S	5	0.06	A	5	0.07	A
T	7	0.19	A	9	0.24	A
U	5	0.10	A	5	0.10	A

Table 8-452: 2026 pedestrian interchange assessment for Moor Street Queensway

Areas	2041 Future Baseline with the Proposed Scheme Traffic					
	AM Peak			PM Peak		
	Max Ped per/min	Density (ped/sqm)	LOS	Max Ped per/min	Density (ped/sqm)	LOS
1	1	0.01	A	5	0.00	A
2	37	0.10	A	40	24.07	A
3	41	0.14	A	62	6.84	A
4	49	0.30	A	48	26.48	A
5	14	0.12	A	16	8.80	A
6	110	0.50	C	113	82.73	C
7	21	0.06	A	21	0.00	A
8	43	0.16	A	37	11.23	A
9	18	0.14	A	16	0.00	A
10	18	0.10	A	18	3.39	A
11	19	0.12	A	16	3.67	A
A	8	0.61	C	9	3.53	B
B	42	1.14	C	40	1.07	B
B+D	55	0.48	A	62	0.55	A
C	54	1.23	C	50	1.14	C
D	14	0.18	A	23	0.30	A
E	23	0.41	A	22	0.39	A
F	9	0.18	A	10	3.65	A
G	18	0.20	A	22	5.88	A
H	20	0.14	A	23	0.17	A
I	10	0.21	A	14	5.76	A
J	7	0.12	A	7	3.76	A
K	8	0.17	A	10	4.84	A
L	24	0.33	A	29	0.40	A

Areas	2041 Future Baseline with the Proposed Scheme Traffic					
	AM Peak			PM Peak		
	Max Ped per/min	Density (ped/sqm)	LOS	Max Ped per/min	Density (ped/sqm)	LOS
M	16	0.26	A	19	11.39	B
N	6	0.06	A	7	1.60	A
O	10	0.23	A	13	0.31	A
P	8	0.18	A	8	3.23	A
Q	16	0.45	A	13	0.38	A
R	5	0.06	A	5	0.00	A
S	5	0.08	A	5	1.00	A
T	9	0.25	A	11	0.30	A
U	6	0.13	A	6	1.67	A

8.6.502 The table shows that, in 2026, all walkway and pedestrian crossing areas (both waiting areas at the kerbside and in the centre reservation) are forecast to operate with a LoS of B or better, where B represents conditions where pedestrians are able to choose their normal walking speed (walkways) or where space is provided for standing and restricted circulation without disturbing others (waiting area), and in effect means the area is within capacity. The majority of sections assessed are forecast to operate with LoS A and therefore well within capacity.

8.6.503 Sections with a forecast LoS B in 2026 are the walkway on the eastern side of Moor Street Queensway outside the entrance to Curzon Street station (AM and PM (17:00-18:00) peak) and the kerbside waiting area at the crossing outside the Bullring (AM peak). In 2041 the links that were LoS B in 2026 become LoS C, which represents conditions where freedom to select walk speed becomes and free pass others becomes restricted (walkways) and where space is provided for standing but with restricted circulation (waiting areas).

8.6.504 The sections forecast to have LoS C in 2041 are therefore the walkway on the eastern side of Moor Street Queensway outside the entrance to Curzon Street station (AM and PM (17:00-18:00) peak) and the kerbside waiting area at the crossing outside the Bullring (AM peak). Sections operating with a forecast LoS B in 2041 are the waiting area at the crossing outside the Bullring (AM peak) and outside the entrance to Curzon Street station. As in 2026 the majority of sections assessed operate with LoS A and therefore well within capacity.

8.6.505 The assessment therefore shows that the Proposed Scheme will have an impact at the walkway on the eastern side of Moor Street Queensway (which is outside the entrance to Curzon Street station) and at the crossing outside the entrance to the Bullring on Moor Street. However, the maximum forecast LoS is C, which is generally considered to provide acceptable conditions at transport interchanges such as Moor Street Queensway. The assessment does not include for any footway widening as part of the concourse of Curzon Street station, and the assessment undertaken is based on robust assumptions of pedestrian demands, and therefore represents a robust assessment.

### **Moor Street/Curzon Street Connection - Curzon Street to Moor Street Link**

8.6.506 An analysis was undertaken of the sizing requirements for the proposed passageway connection between Curzon Street Station and Moor Street Station. The sizing calculation was based on the Network Rail Station Capacity Assessment Guide and the TfL in their Good Practice Guide - Station Planning, Standards and Guidelines. The calculation used to assess the passageway sizing requirement was as follows:

- Two Way Passageway Width =  $(\text{Peak Minute Flow}/40) + (2 \times 0.3\text{m})$ .

8.6.507 A number of assumptions were made in undertaking this assessment, these included:

- It was assumed that 30% of rail – rail Interchangers would access interchange to Moor Street station (the rest would interchange to New Street and Snow Hill station);
- 20% of public transport access mode (which includes walk, cycle, bus and local rail) would be local rail trips of which 30% would access interchange to Moor Street station;
- The peak hour to peak 15 minute factor applied was 0.27 for the AM (08:00-09:00) Peak and 0.31 for the PM (17:00-18:00) Peak (TfL Good Practice Guide - Station Planning, Standards and Guidelines);
- The peak minute flow was calculated by dividing the peak 15 minute flow by 15 (TfL Good Practice Guide - Station Planning, Standards and Guidelines); and
- The results of the analysis for each scenario are shown in the tables below.

Table 8-453: Moor Street passageway connection; 2026 Phase One

Boarding/Alighting	AM peak hour			
	Peak Hour Flow	Peak 15 Minute	Peak Minute	Passageway Size Requirement Flow Rate/40 + (0.6m)
Boarding	181	49	3:3	0.71
Alighting	67	18	1.2	
	PM peak hour			
Boarding	87	27	1.8	0.74
Alighting	177	55	3.6	

Table 8-454: Moor Street passageway connection; 2041 Phase One

Boarding/Alighting	AM peak hour			
	Peak Hour Flow	Peak 15 Minute	Peak Minute	Passageway Size Requirement Flow Rate/40 + (0.6m)
Boarding	258	70	4.6	0.76
Alighting	95	26	1.7	
	PM peak hour			
Boarding	124	38	2.6	0.79
Alighting	251	78	5.2	

Table 8-455: Moor Street passageway connection; 2041 Phase Two

Boarding/Alighting	AM peak hour			
	Peak Hour Flow	Peak 15 Minute	Peak Minute	Passageway Size Requirement Flow Rate/40 + (0.6m)
Boarding	596	161	10.7	0.97
Alighting	220	59	4	
	PM peak hour			
Boarding	287	89	5.9	1.05
Alighting	579	180	12	

8.6.508 The assessment above shows that the maximum passageway requirement based on the demand figures is around 1.1m, in the 2041 Phase Two scenario.

8.6.509 Network Rail Station Capacity Assessment Guide indicates that a minimum width of a passageway should be 2m between finishes.

8.6.510 The design of the Proposed Scheme includes for a 5m wide (approx) link.

8.6.511 The above analysis is based on a series of assumptions that may change, such as the overall demand forecast of passengers boarding/alighting at Curzon Street station. Nevertheless, as the width of the proposed link exceeds both the maximum width requirement based on the forecast demands (1.1m approx), and the minimum width of a passageway which would be acceptable (2m), there is considered to be some flexibility for any changes in the assumptions.

*Moor Street/Curzon Street Connection - vertical connections*

8.6.512 The proposed Curzon Street - Moor Street connection will enable passengers to move between Curzon Street Station and the main concourse area at Moor Street, via a more direct route than via Moor Street Queensway. The Curzon Street - Moor Street connection will enter Moor Street station at high level and passengers will need to travel down into the concourse area. Whilst the vertical facilities have not at this stage been designed, this section considers the minimum requirements for vertical connections between the Curzon Street/Moor Street connection and the Moor Street concourse.

8.6.513 The Network Rail Station Capacity Assessment states:

- Staircases on the main route in the station shall have a minimum obstacle-free width of 1.6m measured between the handrails. The minimum width requirement does not take into account additional width that may be required for passenger flows which therefore stairway width should be determined as follows:
- Two Way Staircase Width = (Peak Minute Flow/28)m
- The number of escalators required for any one direction is as follows:
- Number of Escalators = (Peak Minute One Way Flow/100).

8.6.514 The above shows that:

- if the peak minute two-way flows is less than 28 persons per minute, a staircase of minimum width 1.6m is able to meet the forecast demand; and
- if the peak minute one-way flows is less than 100 persons per minute, a single escalator is able to meet the forecast demand.

8.6.515 The tables above identified the peak minute one and two way flows as 12 persons per minute (one-way) and 17.9 persons per minute (two-way). Based on the figures in the tables, a single escalator in each direction is able to meet the forecast demand. Also, a minimum stairway width of 1.6m (obstacle-free between the handrails) can also meet the forecast demand.

8.6.516 It should be noted that in addition to the provision of either stairs or escalators, consideration will need to be given to step free access either in the form of ramps or lifts.

## Curzon Street to New Street Linkage - Capacity Assessment

- 8.6.517 This section summarises the analysis undertaken to assess the forecast demand related to the Proposed Scheme on the pedestrian links between Curzon Street station and New Street station. This assessment focuses on the forecast demand in pedestrian trips between both stations on each of the two possible pedestrian links/routes. Consideration has also been given to the nature of the route between the two stations. The two possible routes for pedestrians interchanging between the stations are the signed route via the Bullring's main pedestrian plaza using the stairs/ramps to the North of Moor Street Queensway, and secondly along St. Martins Queensway ('tunnel' route).
- 8.6.518 The assessment has been undertaken using the Proposed Scheme PLANET Model passenger demand forecasts and guidance provided by Network Rail in their Station Capacity Assessment Guidance and also further guidance provided by TfL in their Good Practice Guide - Station Planning, Standards and Guidelines.
- 8.6.519 The Proposed Scheme demand forecasts are based on the forecasts provided by the Proposed Scheme Demand Forecasting team in May 2013.
- 8.6.520 A comprehensive set of pedestrian surveys was undertaken in May 2013 on Moor Street Queensway to inform the pedestrian assessment. As part of this, two-way counts were undertaken at the entrance to the St. Martin's Queensway Tunnel and on the ramp from Moor Street Queensway to Rotunda Square. The survey data is summarised below.

Table 8-456: Baseline pedestrian flows, May 2013 – St. Martin's Queensway Tunnel

Direction of travel	08:00-09:00		17:00-18:00	
	Hourly	Flow per minute*	Hourly	Flow per minute*
Northbound	358	6	324	7
Southbound	227	4	379	8
Two-way	585	10	703	15

\* calculated by the applying 0.27 for the AM (08:00-09:00) peak and 0.31 for the PM (17:00-18:00) peak, peak hour to peak 15-minute factor and dividing by 15 (TfL Good Practice Guide - Station Planning, Standards and Guidelines).



Table 8-457: Baseline pedestrian flows, May 2013 – Rotunda Square/Bullring Route

Direction of travel	08:00-09:00		17:00-18:00	
	Hourly	Flow per minute*	Hourly	Flow per minute*
Northbound	196	4	127	3
Southbound	103	2	382	8
Two-way	299	6	509	11

\* calculated by the applying 0.27 for the AM (08:00-09:00) peak and 0.31 for the PM (17:00-18:00) peak, peak hour to peak 15-minute factor and dividing by 15 (TfL Good Practice Guide - Station Planning, Standards and Guidelines).

8.6.521 The tables above show that the existing total demand for the tunnel and the ramp to Rotunda Square is 884 pedestrians in the AM (08:00-09:00) peak and 1212 pedestrians in the peak hour.

8.6.522 The tables below summarise the demand forecasts for Curzon Street station taken from the PLANET model for 2026 (Phase One – London to Birmingham only) and 2041 (Phase One and Two – Y-network). The demand forecasts are shown at the all-day level (16 hours), as well as the AM (08:00-09:00) and PM (17:00-18:00) Peak periods. They are also shown by access mode, split by highway, public transport and rail – rail interchange (i.e. trips to from other strategic rail stations in the city centre).

Table 8-458: 2026 Phase One scenario demand forecasts

Access Mode	Boarding/Alighting	16 Hour Demand Forecasts	AM (08:00-09:00)	PM (17:00-18:00)
Highway Access Mode	Boarding	1413	147	71
	Alighting	1256	48	126
Public Transport Access Mode	Boarding	6339	659	317
	Alighting	6769	257	677
Rail to Rail Interchange	Boarding	4533	471	227
	Alighting	4533	172	453
	Total	24843	1754	1871

Table 8-459: 2041 Phase One scenario demand forecasts

Access Mode	Boarding/Alighting	16 Hour Demand Forecasts	AM (08:00-09:00)	PM (17:00-18:00)
Highway Access Mode	Boarding	2066	215	103
	Alighting	1820	69	182
Public Transport Access Mode	Boarding	8838	919	442
	Alighting	9348	355	935
Rail to Rail Interchange	Boarding	6497	676	325
	Alighting	6497	247	650
	Total	35065	2481	2637

Table 8-460: 2041 Phase Two scenario demand forecasts

Access Mode	Boarding/Alighting	16 Hour Demand Forecasts	AM (08:00-09:00)	PM (17:00-18:00)
Highway Access Mode	Boarding	2580	268	129
	Alighting	2277	87	228
Public Transport Access Mode	Boarding	13603	1415	680
	Alighting	14617	555	1462
Rail to Rail Interchange	Boarding	16391	1705	820
	Alighting	16391	623	1639
	Total	65859	4653	4958

8.6.523 A proportion of the above trips will interchange between Curzon Street station and New Street station. These will be trips to/from New Street to interchange onward rail journeys either to local destinations within the West Midlands or more strategic trips outside of the West Midlands. These journeys would require a walk trip between Curzon Street Station and New Street, using either the route via the tunnel along St. Martin's Queensway or the signed pedestrian route via the Bullring.

8.6.524 A number of assumptions were made in undertaking this assessment, these included:

- It was assumed that 65% of rail – rail Interchangers would interchange to New Street Station (the rest would interchange to Moor Street and Snow Hill Station);
- 20% of public transport access mode (which includes walk, cycle, bus and local rail) would be local rail trips of which 70% would access interchange to New Street Station;

- 40% of the interchange trips would use the route via St Martins Queensway and 60% would use the signed pedestrian route via the Bullring;
- The Peak Hour to Peak 15 minute factor applied was 0.27 for the AM (08:00-09:00) Peak and 0.31 for the PM (17:00-18:00) Peak (TfL Good Practice Guide - Station Planning, Standards and Guidelines); and
- The Peak minute flow was calculated by dividing the Peak 15 minute flow by 15 (TfL Good Practice Guide - Station Planning, Standards and Guidelines).

8.6.525 Based on the above assumptions it was possible to forecast the number of pedestrians that would travel between the two stations via each route in the peak period on an hourly and peak minute basis. The results of this analysis are shown in the tables below for each scenario.

Table 8-461: Curzon Street station to New Street station connections; pedestrian demand two way flow; 2026 Phase One (passengers)

	<b>AM peak hour (08:00-09:00)</b>		
	<b>Peak Hour Flow</b>	<b>Peak 15 Minute</b>	<b>Peak Minute</b>
Via Tunnel	219	59	4
Via Bull Ring	328	89	6
	<b>PM peak hour (17:00-18:00)</b>		
Via Tunnel	232	72	5
Via Bull Ring	349	108	7

Table 8-462: Curzon Street station to New Street station connections; pedestrian demand two way flow; 2041 Phase One (passengers)

	<b>AM peak hour (08:00-09:00)</b>		
<b>Boarding/Alighting</b>	<b>Peak Hour Flow</b>	<b>Peak 15 Minute</b>	<b>Peak Minute</b>
Via Tunnel	311	84	6
Via Bull Ring	467	126	8
	<b>PM peak hour (17:00-18:00)</b>		
Via Tunnel	330	102	7
Via Bull Ring	496	154	10

Table 8-463: Curzon Street station to New Street station connections; pedestrian demand two way flow; 2041 Phase One and Phase Two (passengers)

	<b>AM peak hour (08:00-09:00)</b>		
<b>Boarding/Alighting</b>	<b>Peak Hour Flow</b>	<b>Peak 15 Minute</b>	<b>Peak Minute</b>
Via Tunnel	715	193	13
Via Bull Ring	1073	290	19
	<b>PM peak hour (17:00-18:00)</b>		
Via Tunnel	759	235	16
Via Bull Ring	1139	353	24

8.6.526 The results show that the peak minute flow is in the PM (17:00-18:00) Peak in 2041 Phase One and Two Scenario. In this scenario there is a forecast two way flow of 24 passengers per minute on the route between Curzon Street and New Street via the Bull Ring. On the route between the stations via St Martins Queensway the maximum forecast flow is also in this scenario with 16 two way passengers per minute in the PM (17:00-18:00) Peak period.

8.6.527 In respect of St. Martin's Queensway tunnel, if the existing pedestrian demand is added, the total maximum demand with the Proposed Scheme would be 31 per minute via St. Martin's Queensway (in 2041 Phase One and Phase 2, PM (17:00-18:00) peak).

8.6.528 Based on a passageway width of 1m per 40 passengers per minute, it is not expected that these levels of demand would cause issues with pedestrian capacity on the route.

8.6.529 A sensitivity test was undertaken that assumed all pedestrian movements between Curzon Street and New Street would use the route via the St Martins Queensway (the Tunnel Route). The results in terms of demand flows are shown in the tables below.

Table 8-464: Curzon Street station to New Street station connections; pedestrian demand two way flow; 2026 Phase One (passengers) – via all movements via tunnel route

	<b>Peak Hour Flow</b>	<b>Peak 15 Minute</b>	<b>Peak Minute</b>
AM (08:00-09:00)	547	148	10
PM (17:00-18:00)	581	180	12

Table 8-465: Curzon Street station to New Street station connections; pedestrian demand two way flow; 2041 Phase One (passengers) – via all movements via tunnel route

	<b>Peak Hour Flow</b>	<b>Peak 15 Minute</b>	<b>Peak Minute</b>
AM (08:00-09:00)	778	210	14
PM (17:00-18:00)	826	256	17

Table 8-466: Curzon Street station to New Street station connections; pedestrian demand two way flow; 2041 Phase One and Phase 2 (passengers) – via all movements via tunnel route

	Peak Hour Flow	Peak 15 Minute	Peak Minute
AM (08:00-09:00)	1789	483	32
PM (17:00-18:00)	1898	588	39

8.6.530 Table 8-466 above shows that in the absolute worst case assessment, there is a demand of 39 pedestrians per minute (two-way) through the tunnel. Again, combining this with the background demand this equates to a total demand of 54 pedestrians per minute (two-way) through the tunnel. Based on a passageway width of 1m per 40 passengers per minute, this results in a passageway width requirement of just under 1.4m through the tunnel. Whilst the passageway width through the tunnel is variable, the general width does not fall below 3m throughout the length of the tunnel (absolute minimum pinch point width 2.65m). Therefore, even under this onerous scenario, the existing route via the tunnel is considered to provide adequate width to meet the forecast demand.

8.6.531 As noted earlier in the report, BCC/Centro have aspirations to improve the environment through the tunnel. Any improvements would the interchange experience and it is worth noting that the Proposed Scheme proposals do not prohibit or preclude any such improvements coming forward.

#### *Pedestrian, cyclist and equestrians*

8.6.532 Relative to during construction of the Proposed Scheme, it is expected that the impacts on pedestrians and cyclists resulting from the operation of the Proposed Scheme will be lower, as footpath links will generally be re-instated.

8.6.533 The review of footpath links indicates that there will be additional walking distances and journey times on eight routes, with four of these requiring a diversion by users of more than 500 m. This equates to an increase in journey time of eight minutes or more (for pedestrians). Key footpath links impacted include Viaduct Street, Fazeley Street, Park Street and the footpath link across the park area between Fazeley Street and Park Street.

8.6.534 The table below summarises the expected impacts to footpath links surveyed within the Washwood Heath to Curzon Street area in the operational phase, in terms of diversion length and journey time. All other routes will have minimal or no change.

Table 8-467: Summary of footpath impacts (Operation)

Survey No.	Location	Operational Activity	Daily Users*	Maximum Diversion Length	Maximum Diversion Journey Time
53	Viaduct Street	Permanent closure of road for overhead Vauxhall Line Crossover viaduct.	41	700m	9 min
64	Banbury Street, West of New Canal Street	Banbury Street to be closed	204	265m	4 min
65	Bartholomew Street, North of Fazeley Street	Bartholomew Street to be closed	233	450m	6 min
66	Fazeley Street, West of Bartholomew Street	Fazeley Street to be closed	1633	580m	7 min
67	Park Street, South of Fazeley Street	Park Street to be closed	664	680m	9 min
68/69	Link between Fazeley Street and Park Street	Grass area to be removed	585	765m	9 min
70	Link between Banbury Street and Bartholomew Street	Grass area to be removed	55	270m	4 min

\* Worst case flow selected where two flows are present for the same link

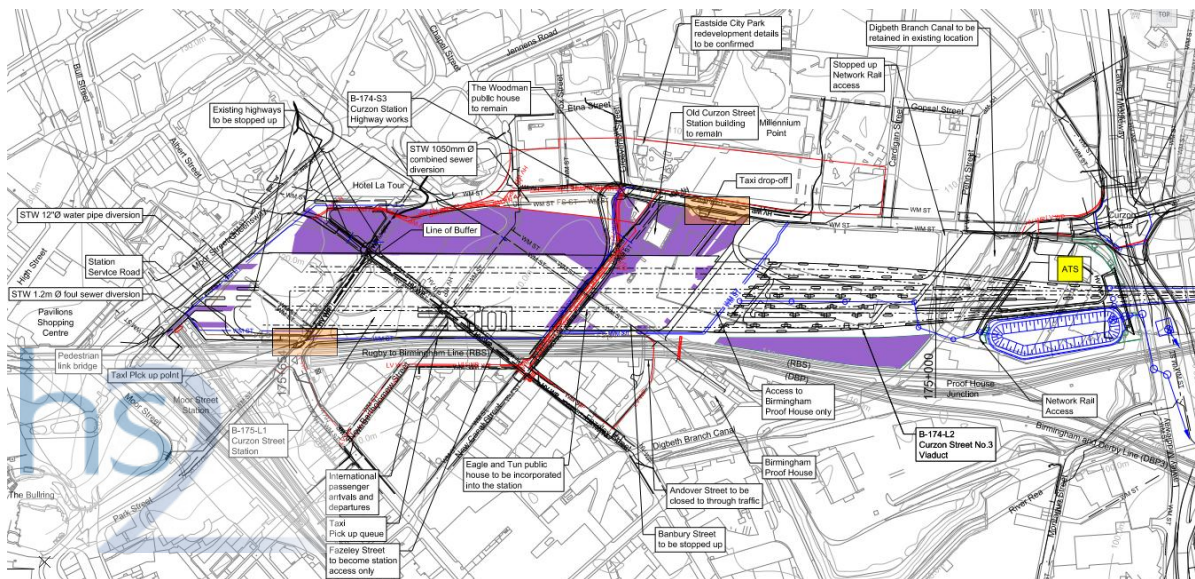
8.6.535 Curzon Street station will sever a signed on-road cycle route at Fazeley Street. Cyclists will be required to modify their route and either access an off-road cycle route adjacent to the Birmingham and Fazeley Canal or use the New Canal Street advisory on-road cycle route.

8.6.536 There are no equestrian routes within the Washwood Heath to Curzon Street area. Therefore, there will be no impact of the Proposed Scheme on equestrian routes (in terms of either the 2026 or 2041 operation assessments).

### *Taxis*

8.6.537 The Proposed Scheme and, in particular, Curzon Street station will increase demand for taxis and also result in increased taxi movements within Birmingham City Centre. Dedicated facilities have been incorporated within the design for the Curzon Street station. Taxi drop-off (on Curzon Street) and pick-up area (on in the vicinity of the existing Park Street/Bordesley Street junction) will be provided, with capacity for 11 taxis and 40 taxis respectively, at the locations shaded in orange on the figure below.

Figure 8-50: Proposed Curzon Street station design - taxi drop and pick-up points (annotated extract from Drawing C224-ARP-CV-DPL-040-226700)



8.6.538 The table below summarises the forecast number of drop-offs and pick-ups by taxis in the AM (08:00-09:00) and PM (17:00-18:00) peak periods in 2026 and 2041. The forecasts are based on the application of the modal share totals from the Birmingham New Street station survey for 'car based trips' to the PLANET model data for boarders and alighters in 2026 and 2041 at the Curzon Street station, as set out in earlier in this section.

Table 8-468: the Proposed Scheme 2026 taxi demand

Year	Period	Boarders (drop off)	Alighters (pick up)
2026	07:00-08:00	41	1
	08:00-09:00	38	34
	09:00-10:00	31	79
	16:00-17:00	79	35
	17:00-18:00	45	43
	18:00-19:00	45	49
2041	07:00-08:00	76	1
	08:00-09:00	69	61
	09:00-10:00	57	143
	16:00-17:00	144	63
	17:00-18:00	83	78
	18:00-19:00	81	89

8.6.539 The demand for taxis will be spread across each hour and will be generated by the arrival/departure patterns of four trains per hour in 2026 and six trains per hour in 2041. This suggests a maximum average demand of 13 taxi drop-offs per train in the 2041 AM (07:00-08:00) and 24 per train in the 2041 PM peak (16:00-17:00). In comparison, the average demand for pick-ups will be 24 taxis per train in the AM peak (09:00-10:00) and 15 taxis per train in the PM peak (18:00-19:00).

8.6.540 Based on the average maximum demand per train during the peak hours, and assuming the staggered arrival of taxis to the area, particularly in relation to the drop-off of passengers, the capacity provided for the Proposed Scheme is predicted to be suitable for the forecast demand.

8.6.541 The Proposed Scheme will result in long distance rail passengers diverting from using services at Birmingham New Street station and instead using the Proposed Scheme services from Curzon Street station. Therefore a proportion of the taxi demand at Curzon Street will result in a reduction in taxi demand at Birmingham New Street. The impact of this reduced demand at Birmingham New Street, in particular in terms of reduced taxi movements around Birmingham New Street, has not been assessed.

#### *Waterways and canals*

8.6.542 The Proposed Scheme will not result in changes to the existing canal network in the Washwood Heath to Curzon Street area. Therefore, there will be no impact of the Proposed Scheme on waterways and canals (in terms of either the 2026 or 2041 operational assessments).

#### *Air transport*

8.6.543 Birmingham Airport is located to the east of Birmingham and is included in the Birmingham Interchange and Chelmsley Wood area (CFA24) section of this report. Any impacts on air transport are assessed in that section.

### **Washwood Heath to Curzon Street Station (CFA26) Proposed Scheme mitigation of impacts**

#### *Strategic and local road network*

#### **Curzon Circle and Garrison Circus**

8.6.544 The highway link and junction assessments have identified the requirement for mitigation at Curzon Circle and Garrison Circus, to address the impacts arising from the Proposed Scheme.

8.6.545 As part of the mitigation proposals, it is proposed that both Curzon Circle and Garrison Circus will be upgraded. The Curzon Circle junction will be reconfigured as a signalised crossroads in the future baseline and the proposed upgrade as part of the mitigation of the Proposed Scheme are to further increase the capacity of the junction. Garrison Circus would be reconfigured as a signalised crossroads as part of the Proposed Scheme.



Figure 8-51 - Proposed mitigation at Curzon Circle

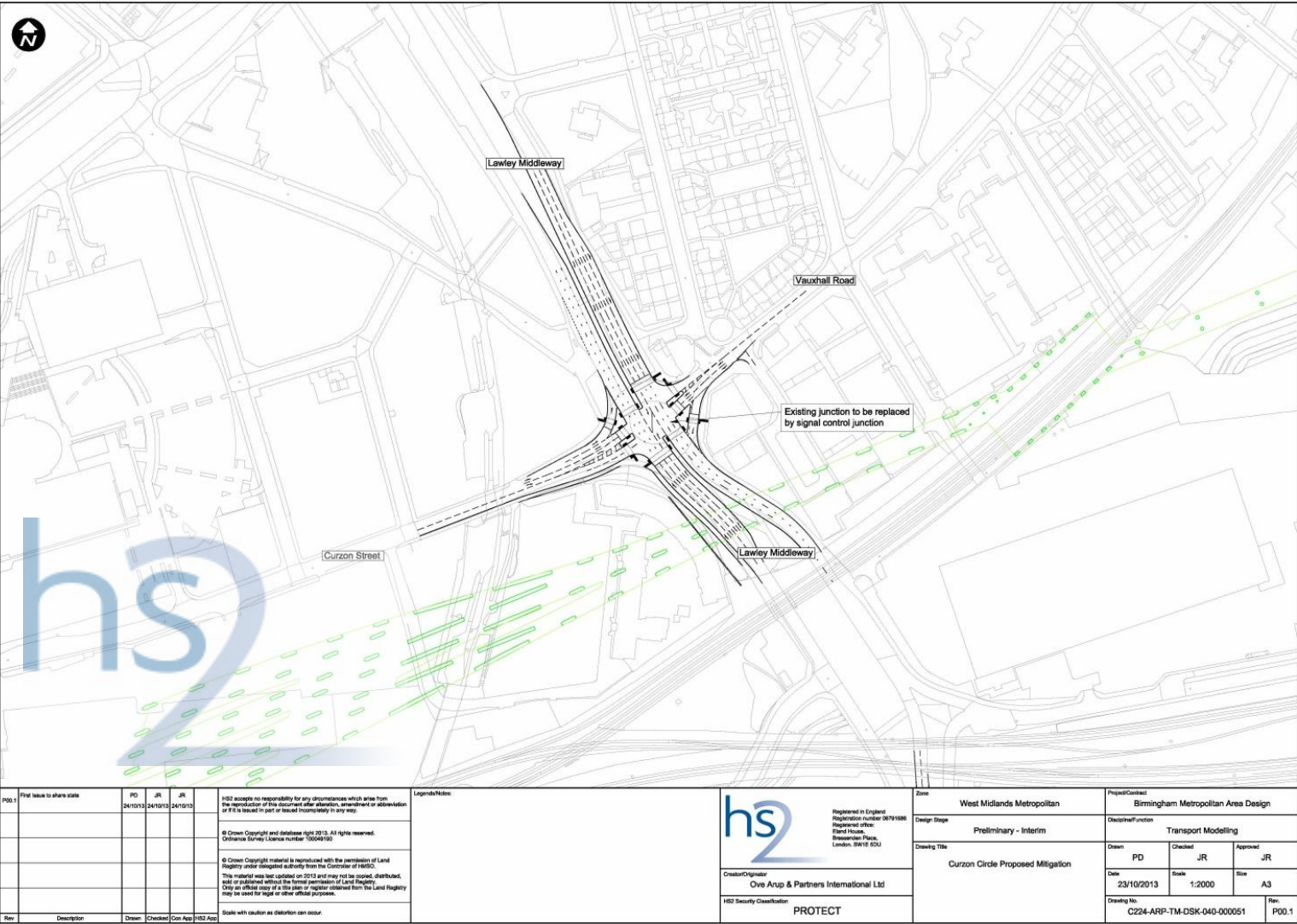
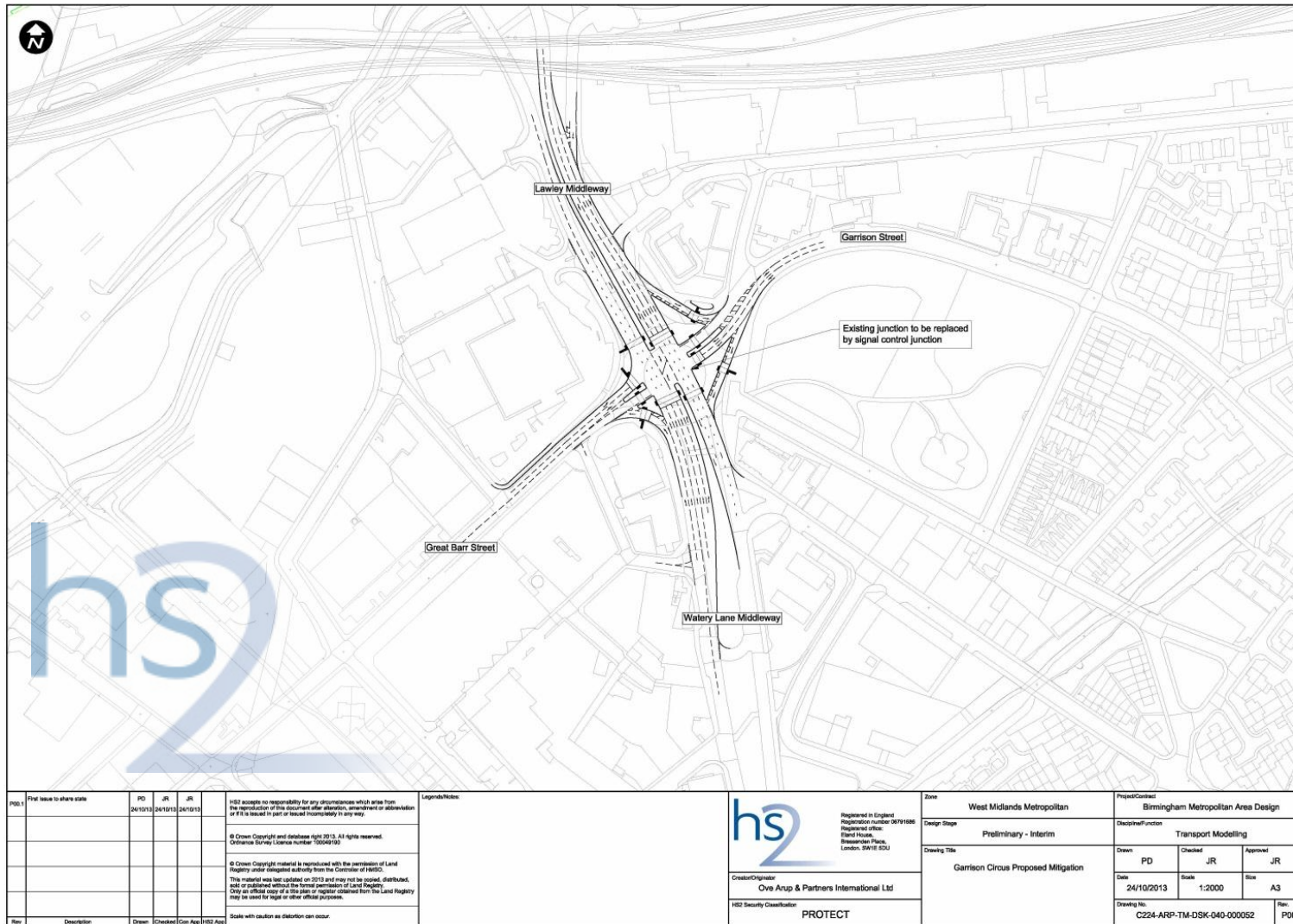


Figure 8-52 - Proposed mitigation at Garrison Circus



- 8.6.546 It is intended that staggered pedestrian crossings will be delivered on each arm of the junction, with the designs proposed enabling pedestrian phases to be incorporated into the general traffic staging, which would minimise delay for all users. The provision of these facilities will deliver an improvement for pedestrians, given that uncontrolled crossings are currently provided at each side road.
- 8.6.547 The proposed junctions will be linked as part of a SCOOT region or MOVA network, in order to regulate and control potential impacts from queuing between the junctions.
- 8.6.548 In order to consider the impacts of the proposed mitigation on travel patterns across the highway network in the city centre, the proposed mitigation improvements at these junctions has been modelled in the BCCM model, alongside other local improvements, including the signalisation of the Curzon Street/Cardigan Street junction.
- 8.6.549 The proposed junctions have been modelled in Linsig V3 as a linked network, with the results shown in the tables below for Curzon Circle and Garrison Circus respectively. The assessments are based on traffic flows output from the BCCM model, which as mentioned above was run with the Proposed Scheme plus the proposed highway mitigation.
- 8.6.550 The tables below present the results for the Curzon Circle and Garrison Circus linked model based on the flows from the BCCM model for the Proposed Scheme with mitigation, and provide comparison to the tests of the Proposed Scheme without mitigation.

Table 8-469: 2026 future baseline with the Proposed Scheme traffic Curzon Circle mitigation modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	376	78	12	229	94	10	145	120	17
A4540 Lawley Middleway (N)	2377	147	445	2422	190	173	2891	269	299
Vauxhall Road	739	141	143	747	189	213	758	271	286
A4540 Lawley Middleway (S)	2036	118	212	2176	151	120	2327	247	213
Total	5528		812	5574		516	6121		815
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	715	118	86	270	55	8	256	88	11
A4540 Lawley Middleway (N)	1646	116	176	1917	196	145	1841	203	138
Vauxhall Road	553	90	20	562	110	48	565	177	151
A4540 Lawley Middleway (S)	1914	116	208	1958	151	153	2105	121	133
Total	4828		489	4707		354	4767		434

Table 8-470: 2041 future baseline with the Proposed Scheme traffic Curzon Circle Mitigation modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme			2041 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	540	131	88	202	92	8	103	26	3
A4540 Lawley Middleway (N)	2379	188	178	2523	199	214	2778	205	417
Vauxhall Road	799	185	221	800	198	248	826	196	254
A4540 Lawley Middleway (S)	2174	142	116	2264	160	138	2591	195	271
Total	5892		603	5789		607	6298		944
17:00-18:00	2041 future baseline			2041 With the Proposed Scheme			2041 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	728	128	112	260	86	11	264	88	12
A4540 Lawley Middleway (N)	1771	167	122	1970	177	200	1883	254	171
Vauxhall Road	597	102	33	612	180	167	616	183	170
A4540 Lawley Middleway (S)	1966	163	166	2019	116	142	2348	160	222
Total	5062		432	4861		520	5111		575

Table 8-471: 2026 future baseline with the Proposed Scheme traffic Garrison Circus Mitigation modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A4540 Lawley Middleway (N)	2346	0.76	4	2383	0.76	3	2680	0.84	6
Garrison Lane	495	0.75	3	495	0.70	3	470	0.89	7
A4540 Watery Lane Middleway (S)	1514	1.00	29	1531	1.01	34	1632	1.05	60
Great Barr Street	412	1.74	111	426	1.75	115	388	1.72	122
Total	4767		147	4835		155	5170		195
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A4540 Lawley Middleway (N)	2103	1.08	98	2113	1.06	83	2063	0.99	30
Garrison Lane	537	1.04	22	483	0.94	9	483	0.88	6
A4540 Watery Lane Middleway (S)	1083	1.41	225	1043	1.36	175	1073	1.31	151
Great Barr Street	704	1.25	97	780	1.34	149	776	1.36	166
Total	4427		441	4419		416	4395		353

Table 8-472: 2041 future baseline with the Proposed Scheme traffic Garrison Circus Mitigation modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme			2041 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A4540 Lawley Middleway (N)	2357	0.77	4	2391	0.76	3	2618	0.81	5
Garrison Lane	525	0.80	4	525	0.72	3	511	0.79	4
A4540 Watery Lane Middleway (S)	1580	1.11	102	1557	1.03	49	1582	1.06	66
Great Barr Street	498	1.88	220	503	2.15	211	648	2.73	389
Total	4960		330	4976		266	5359		463
17:00-18:00	2041 future baseline			2041 With the Proposed Scheme			2041 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue
A4540 Lawley Middleway (N)	2123	1.08	97	2089	1.04	63	2055	0.99	27
Garrison Lane	577	1.01	19	517	0.95	11	542	0.95	11
A4540 Watery Lane Middleway (S)	1099	1.59	311	1124	1.50	268	1329	1.70	430
Great Barr Street	590	1.00	19	721	1.21	86	754	1.28	138
Total	4389		446	4451		426	4680		605

- 8.6.551 The proposed mitigation is expected to improve capacity at both Curzon Circle and Garrison Circus. The table above indicates that the increase in capacity, provided by the proposed mitigation at Curzon Circle and Garrison Circus, is likely to draw more vehicles through the A4540, compared to the future baseline and future baseline with the Proposed Scheme traffic scenarios, thereby reducing pressure on other road links within the city centre.
- 8.6.552 The increased traffic flow through Curzon Circle and Garrison Circus junctions will result in an apparent reduction in performance, however as shown below in the screenline assessment traffic flows on A4540 Lawley Middleway are forecast to substantially increase traffic on Lawley Middleway, particularly in the AM (08:00-09:00) peak southbound.
- 8.6.553 Overall, 'nil detriment' is predicted at Curzon Circle and Garrison Circus with the Proposed Scheme and associated junction improvements. The situation will be no worse off than what it would otherwise be with the future baseline. However, through releasing additional capacity at these junctions, and subsequently drawing additional traffic through the A4540, it is expected that wider benefits will be achieved across the city centre road network.

#### **Moor Street Queensway**

- 8.6.554 In the Proposed Scheme junction capacity assessment, it was identified that junctions on Moor Street Queensway are expected to operate over capacity in 2026 and 2041 with the Proposed Scheme. As discussed above, the proposed mitigation schemes on the A4540 at Curzon Circle and Garrison Circus will draw more traffic through the A4540 Lawley Middleway and these junctions, thereby reducing traffic flows on other routes in the local area including Moor Street Queensway.
- 8.6.555 The tables below summarise the junction assessment results for the B4100 Moor Street Queensway/James Watt Queensway and B4100 Moor Street Queensway/Masshouse Lane junctions, based on the BCCM model outputs for the Proposed Scheme with mitigation scenario. It should be noted that mitigation at the Moor Street Queensway junctions was not included in the Proposed Scheme with mitigation scenario.



Table 8-473: 2026 future baseline with the Proposed Scheme traffic Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane modelling results

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
B4114 James Watt Queensway	1487	101	45	1169	100	32	925	74	15
B4114 Jennens Road	318	51	58	307	49	6	280	45	7
B4100 Moor Street Queensway	1058	102	23	1098	105	32	1018	74	16
Priory Street Queensway	184	44	3	184	59	7	168	58	6
Masshouse Lane	335	37	3	736	61	10	851	61	14
B4100 Moor Street Queensway (S)	934	55	13	941	35	14	863	32	12
Total	4316		92	4435		100	4105		71

17:00-18:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
B4114 James Watt Queensway	854	82	17	785	71	13	759	73	13
B4114 Jennens Road	675	77	13	343	67	7	330	60	6
B4100 Moor Street Queensway	1198	83	13	1150	74	17	1144	71	16
Priory Street Queensway	176	44	3	178	63	7	171	64	6
Masshouse Lane	497	61	5	889	69	17	910	71	18
B4100 Moor Street Queensway (S)	906	60	13	906	37	16	879	36	15
Total	4306		64	4251		76	4193		75

Table 8-474: 2041 future baseline with the Proposed Scheme traffic Moor Street Queensway/James Watt Queensway and Moor Street Queensway/Masshouse Lane modelling results

08:00-09:00	2041 future baseline			2041 With the Proposed Scheme			2041 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
B4114 James Watt Queensway	1492	101	46	1337	104	46	1126	86	21
B4114 Jennens Road	328	53	6	307	49	6	290	46	5
B4100 Moor Street Queensway	1089	101	22	1090	97	24	1018	85	18
Priory Street Queensway	180	44	3	177	62	7	160	61	6
Masshouse Lane	334	39	4	905	72	12	965	81	17
B4100 Moor Street Queensway (S)	962	54	13	955	34	13	893	31	12
Total	4385		93	4771		107	4452		78

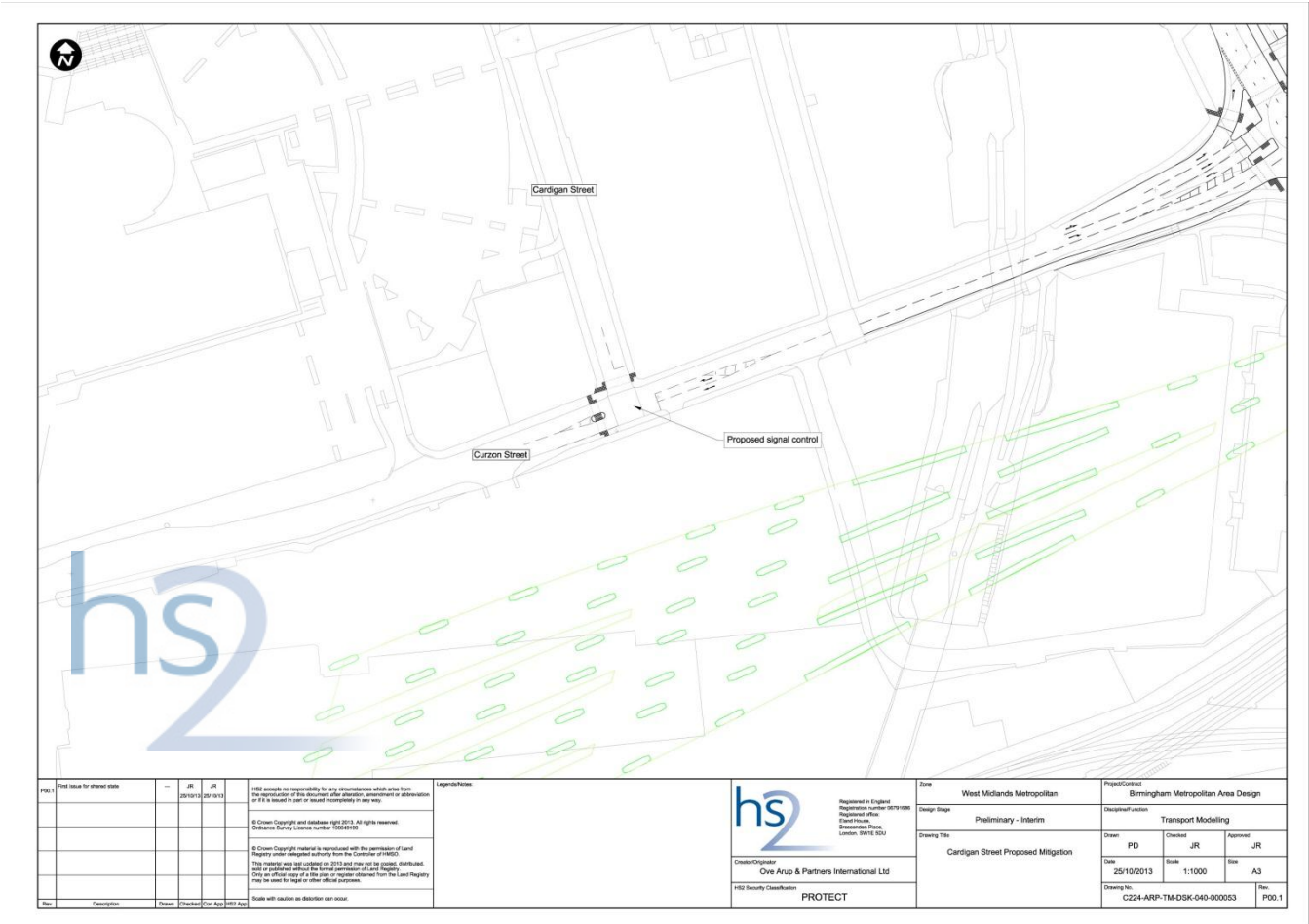
17:00-18:00	2041 future baseline			2041 With the Proposed Scheme			2041 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
B4114 James Watt Queensway	846	72	15	783	71	13	761	69	13
B4114 Jennens Road	678	72	13	465	53	8	418	61	8
B4100 Moor Street Queensway	1201	75	13	1155	63	16	1150	69	16
Priory Street Queensway	171	44	3	175	68	7	169	70	7
Masshouse Lane	482	64	5	1013	72	21	1002	71	26
B4100 Moor Street Queensway (S)	923	59	13	910	37	16	885	36	15
Total	4301		61	4501		80	4385		85

8.6.556 The above results show that the operation of the B4100 Moor Street Queensway junctions with Masshouse Lane and James Watt Queensway will improve as a result of the proposed mitigation at Curzon Circle and Garrison Circus. Therefore no additional mitigation is required at these junctions over and above a potential re-optimisation of signal timings to suit the change in distribution of traffic due to the closure of B4114 Park Street.

Curzon Street/Cardigan Street Junction

8.6.557 At the Curzon Street/Cardigan Street junction, the implementation of the Proposed Scheme will result in increased traffic flows on Cardigan Street, with the existing configuration unable to accommodate this demand in the AM (08:00-09:00) peak. Signalisation of the junction is proposed to mitigate the impacts of the Proposed Scheme. The figure below shows an indicative design for the signalisation of this junction.

Figure 8-53: Proposed mitigation at Curzon Street/Cardigan Street



- 8.6.558 The tables below present the results for 2026 and 2041 following the introduction of mitigation at the Curzon Street/Cardigan Street junction. The junction is forecast to operate within capacity in 2026 and 2041, indicating that the proposed mitigation will address the impacts arising from the Proposed Scheme at this location.

Table 8-475: 2026 Curzon/Cardigan Street modelling results (mitigation)

08:00-09:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	321	0.00	0	19	0.00	0	30	3	0
Cardigan Street	99	0.26	0	423	0.85	5	302	50	4
New Canal Street	393	0.00	0	448	0.02	0	541	51	6
Total	813		0	890		5	873		11
17:00-18:00	2026 future baseline			2026 With the Proposed Scheme			2026 With Mitigation		
Approach (from)	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity RFC	Max queue	Flow (all PCU)	Flow/ capacity % DOS	Max queue
Curzon Street	491	0.00	0	48	0.00	0	41	4	0
Cardigan Street	3	0.01	0	184	0.38	1	186	3	3
New Canal Street	256	0.00	0	428	0.00	0	462	39	4
Total	750		0	660		1	689		7

Table 8-476: 2041 Curzon/Cardigan Street modelling results (mitigation)

<b>08:00-09:00</b>	<b>2041 future baseline</b>			<b>2041 With the Proposed Scheme</b>			<b>2041 With Mitigation</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
Curzon Street	460	0.00	0	27	0.00	0	29	4	0
Cardigan Street	226	0.64	2	389	0.82	4	537	68	8
New Canal Street	361	0.00	0	507	0.00	0	583	67	9
Total	1047		2	923		4	1149		17
<b>17:00-18:00</b>	<b>2041 future baseline</b>			<b>2041 With the Proposed Scheme</b>			<b>2041 With Mitigation</b>		
<b>Approach (from)</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity RFC</b>	<b>Max queue</b>	<b>Flow (all PCU)</b>	<b>Flow/ capacity % DOS</b>	<b>Max queue</b>
Curzon Street	544	0.00	0	60	0.00	0	54	4.3	0
Cardigan Street	7	0.02	0	187	0.41	1	180	45.4	3
New Canal Street	330	0.03	0	548	0.00	0	594	45.8	5
Total	881		0	795		1	828		9



*Network performance summary (with mitigation)*

8.6.560 The tables below show the network performance statistics for the BCCM model for 2026 and 2041 with the Proposed Scheme, with and without the proposed improvements at Curzon Circle, Garrison Circus and at the Curzon Street/Cardigan Street junction.

Table 8-477: Network performance statistics, with the Proposed Scheme, with and without Mitigation, AM (08:00-09:00) peak

Statistics	2026 with the Proposed Scheme	2026 with the Proposed Scheme and Mitigation	2041 with the Proposed Scheme	2041 with the Proposed Scheme and Mitigation
Transient Queues (PCU.Hrs)	1272.1	1332.4	1527.7	1603.5
Overcapacity Queues (PCU.Hrs)	1325.9	1216.0	2315.3	2026.8
Cruise Time (PCU.Hrs)	2853.5	2856.9	3199.2	3212.1
Total Travel Time (PCU.Hrs)	5451.5	5405.4	7042.2	6842.3
Travel Distance (PCU.Kms)	124,883.9	124898.1	139283.8	139474.4
Average Speed (KPH)	22.9	23.1	19.8	20.4
Total Trips Loaded	44,061	44,200	48,633	48,878

Table 8-478: Network performance statistics, with the Proposed Scheme, with and without Mitigation, PM (17:00-18:00) peak

Statistics	2026 with the Proposed Scheme	2026 with the Proposed Scheme and Mitigation	2041 with the Proposed Scheme	2041 with the Proposed Scheme and Mitigation
Transient Queues (PCU.Hrs)	1280.7	1317.5	1496.3	1557.3
Overcapacity Queues (PCU.Hrs)	592.1	551.9	1013.3	901.0
Cruise Time (PCU.Hrs)	2812.2	2810.9	3094.4	3099.9
Total Travel Time (PCU.Hrs)	4685.0	4680.2	5604.0	5558.2
Travel Distance (PCU.Kms)	121,786.2	121,731.4	133,924.3	134,109.7
Average Speed (KPH)	26.0	26.0	23.9	24.1
Total Trips Loaded	43,053	43,077	47,104	47,184

8.6.561 In the AM (08:00-09:00) peak, the proposed mitigation has the impact of reducing over capacity queues in the BCCM model in both 2026 and 2041. Also, in both 2026 and 2041 the total trips through the network is forecast to increase indicating that the proposed mitigation releases capacity in the BCCM network.

8.6.562 In the PM (17:00-18:00) peak, the proposed mitigation has minimal impact on the overall BCCM network performance.

*Screenline assessment - with mitigation*

- 8.6.563 With the introduction of junction improvements at Curzon Circle, Garrison Circus and Curzon/Cardigan Street, the screenline assessment of key links discussed earlier in this section has been updated, with the results for the 2026 and 2041 AM (08:00-09:00) and PM (17:00-18:00) peak scenarios shown in the following tables.

Table 8-479: 2026 screenline comparison (relative to the future baseline)

<b>2026 AM (08:00-09:00) peak</b>						
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic		Future Baseline With the Proposed Scheme Traffic (Mitigation)	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2026 future baseline	All vehicles	With the Proposed Scheme % change from 2026 future baseline
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1838	1963	6.8%	2111	14.9%
	SB	2077	2106	1.4%	2519	21.3%
New Canal Street between Curzon Street and Fazeley Street	NB	338	0	-100.0%	0	-100.0%
	SB	465	645	38.7%	641	37.7%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1113	0	-100.0%	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	760	769	1.2%	767	1.0%
	SB	115	513	346.1%	427	271.1%
A38 between Livery Street and Ludgate Hill	NB	4004	3976	-0.7%	3983	-0.5%
	SB	4035	4051	0.4%	4055	0.5%

2026 PM (17:00-18:00) peak						
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic		Future Baseline With the Proposed Scheme Traffic (Mitigation)	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2026 future baseline	All vehicles	With the Proposed Scheme % change from 2026 future baseline
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1864	1904	2.1%	2051	10.0%
	SB	1772	1803	1.8%	1767	-0.3%
New Canal Street between Curzon Street and Fazeley Street	NB	484	0	-100.0%	0	-100.0%
	SB	271	595	119.6%	615	126.8%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	980	0	-100.0%	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	805	818	1.6%	814	1.1%
	SB	109	482	342.2%	490	349.6%
A38 between Livery Street and Ludgate Hill	NB	4353	4376	0.5%	4370	0.4%
	SB	3546	3626	2.2%	3641	2.7%

8.6.564 The above assessment of traffic flows across the screenline in 2026 shows that the proposed mitigation measures will result in increased flows in the AM (08:00-09:00) peak on the A4540 Lawley Middleway (8% northbound and 20% southbound), a 17% reduction in flows on B4100 Moor Street Queensway (southbound), and no change in flows on New Canal Street, B4100 Moor Street Queensway (northbound) and on the A38.

8.6.565 In the PM (17:00-18:00) peak flows are forecast to increase on A4540 Lawley Middleway (8% northbound) with minimal changes on all other links.

Table 8-480: 2041 Screenline comparison (relative to the future baseline)

<b>2041 AM (08:00-09:00) peak</b>						
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic		Future Baseline With the Proposed Scheme Traffic (Mitigation)	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2041 future baseline	All vehicles	With the Proposed Scheme % change from 2041 future baseline
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1933	2012	4.1%	2314	19.7%
	SB	2085	2099	0.7%	2444	17.2%
New Canal Street between Curzon Street and Fazeley Street	NB	490	0	-100.0%	0	-100.0%
	SB	551	689	25.0%	908	64.8%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	1144	0	-100.0%	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	792	800	1.0%	800	1.0%
	SB	113	637	463.7%	606	436.2%
A38 between Livery Street and Ludgate Hill	NB	4120	4150	0.7%	4135	0.4%
	SB	4052	4058	0.1%	4057	0.1%
<b>2041 PM (17:00-18:00) peak</b>						
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic		Future Baseline With the Proposed Scheme Traffic (Mitigation)	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2041 future baseline	All vehicles	With the Proposed Scheme % change from 2041 future baseline
A4540 Lawley Middleway between Curzon Circle and Garrison Circus	NB	1912	1962	2.6%	2291	19.8%
	SB	1767	1761	-0.3%	1740	-1.5%
New Canal Street between Curzon Street and Fazeley Street	NB	605	0	-100.0%	0	-100.0%
	SB	425	701	64.9%	715	68.2%
B4114 Park Street between Masshouse Lane and Bordesley Street	SB	960	0	-100.0%	0	-100.0%
B4100 Moor Street Queensway between Masshouse Lane and Moor Street	NB	821	825	0.5%	818	-0.3%
	SB	106	573	440.6%	610	475.0%

2041 AM (08:00-09:00) peak						
Location	Direction	Future Baseline	Future Baseline With the Proposed Scheme Traffic		Future Baseline With the Proposed Scheme Traffic (Mitigation)	
		All vehicles	All vehicles	With the Proposed Scheme % change from 2041 future baseline	All vehicles	With the Proposed Scheme % change from 2041 future baseline
A38 between Livery Street and Ludgate Hill	NB	4425	4453	0.6%	4448	0.5%
	SB	3854	3918	1.6%	3917	1.6%

8.6.566 The above assessment of traffic flows across the screenline in 2041 shows that the proposed mitigation measures will result in increased flows in the AM (08:00-09:00) peak on the A4540 Lawley Middleway (15% northbound and 16% southbound), a 5% reduction in flows on B4100 Moor Street Queensway (southbound), and minimal change in flows on B4100 Moor Street Queensway (northbound) and on the A38. A 32% increase is forecast on New Canal Street and New Canal Street is predicted, however this is likely to be due to a modelling anomaly rather than an impact of the proposed mitigation.

8.6.567 In the PM (17:00-18:00) peak flows are forecast to increase by 17% on A4540 Lawley Middleway (northbound) and minimal changes in flows on A4540 Lawley Middleway (southbound), New Canal Street, B4100 Moor Street Queensway, and A38.

8.6.568 It can be observed from the screenline assessment tables above that the additional capacity provided by the mitigation scheme improvements on the A4540 at Curzon Circle and Garrison Circus is forecast to draw more traffic through the A4540, which is expected to results in benefits on other routes in the city centre.

### *Accidents and safety*

8.6.569 The proposed scheme will not have any substantial impacts on safety as a result of increased traffic associated with the Proposed Scheme. Therefore, no mitigation is required in terms of the local rail network in the Washwood Heath to Curzon Street area.

### *Parking*

8.6.570 The Proposed Scheme will provide 60 short stay car park spaces, to accommodate demand for drop-offs and pick-ups at the Curzon Street station. The assessment demonstrates that, in both 2026 and 2041, the car park will provide adequate capacity to accommodate the demands generated from the Proposed Scheme. Therefore, no mitigation is required in terms of short stay car parking in the Washwood Heath to Curzon Street area.

- 8.6.571 Based on the location of the Curzon Street station in Birmingham city centre and the very close proximity of excellent public transport provision, travel by modes other than the private car will be strongly encouraged.
- 8.6.572 Therefore, it is proposed that no dedicated long term car parking provision will be provided for the Curzon Street station, with any passengers using the Curzon Street station, arriving or departing by car, required to park at other car parks in the immediate local area. As identified in earlier spare capacity may be available at the Millennium Point car park, throughout the day, to cater for the demand from the Proposed Scheme.
- 8.6.573 Furthermore, it is expected that alternative car parking areas in close proximity to the Curzon Street station, such as at the proposed Martineau Galleries development and Millennium Point, and at other sites around the city centre, will provide capacity for any displaced car parking or additional demand generated by the Proposed Scheme. Therefore, no mitigation is required in terms of long stay car parking in the Washwood Heath to Curzon Street area.
- 8.6.574 As well as the loss of pay and display car parks local to the Curzon Street station, up to six businesses are expected to be impacted through the loss of parking associated with the Proposed Scheme. Limited opportunities for alternative parking are likely to be available and, therefore, the businesses will be consulted to determine their demand for car parking and to assist with the identification of alternative options where required.

### *Rail*

- 8.6.575 The Proposed Scheme will provide strong and positive impacts in terms of the strategic rail network, relating to an increase in rail capacity and improved journey times, with no negative impacts expected on the strategic rail network.
- 8.6.576 The impacts for local rail services will be similar to those for the strategic rail network, particularly in relation to capacity benefits
- 8.6.577 As noted earlier in the report, BCC and Centro have aspirations to extend the Midland Metro beyond the current network, and beyond the on-going extension between Snow Hill and New Street stations, potentially providing a link to Curzon Street station. However such an extension is not currently committed. An extension of the network to Curzon Street station would enhance the interchange experience and it is worth noting that the Proposed Scheme proposals do not prohibit or preclude any such improvements coming forward.

### *Local bus and coach services*

- 8.6.578 A review of routeing for local bus and coach services has confirmed that no mitigation will be required in regards to the diversion of bus and coach services, with the closure of Park Street and New Canal Street (northbound) only resulting in minor delays to bus routes and coach services within the area. The increase in bus passengers from the Proposed Scheme will be spread across many services and so the impact on individual services is expected to be minimal and not affect bus stop and other passenger facilities. Commercial operators are likely to adjust services to cater for the increased and changed demands.

### *Public transport interchanges*

- 8.6.579 The Proposed Scheme will include a direct link between the west entrance to the Curzon Street station and the adjacent Moor Street Station. This will facilitate interchange between the Proposed Scheme rail services and the Chiltern and local rail services that operate from Moor Street station.
- 8.6.580 The pedestrian assessments have shown that the impact of the Proposed Scheme on public transport interchange conditions on Moor Street Queensway, in regards to crowding and walkways speed, is greatest on the footway outside the Curzon Street station. The proposed station forecourt will be wider than the existing footway and therefore this will serve to mitigate the impacts. Therefore, the results of the pedestrian assessment, together with the interchange facilities available for Moor Street Station and Moor Street Queensway, indicate that no mitigation is required to facilitate public transport interchange in the Washwood Heath to Curzon Street area.
- 8.6.581 Centro are currently considering options for improving the St. Martin's Queensway tunnel link between Moor Street Queensway and New Street station as part of the One Station Project as discussed in the Future Baseline section of this report. Whilst the assessment of the linkage has not identified a need for any requirements to mitigate against the Proposed Scheme impacts, the scheme being promoted by Centro would enhance this linkage for all users of the link, including the Proposed Scheme passengers interchanging with services at New Street. It should be noted that the Proposed Scheme proposals do not prevent any such schemes coming forward.

### *Taxis*

- 8.6.582 For domestic drop-offs and pick-ups, the Proposed Scheme includes a taxi drop-off area on Curzon Street, together with a shared taxi pick-up area at Park Street which will serve both the Curzon Street station and Moor Street Station. An international taxi drop-off and pick-up area will also be provided beneath the Curzon Street station concourse, at the end of the revised Fazeley Street.

- 8.6.583 Space for 11 taxi drop-offs will be provided on Curzon Street. Based on the temporary nature of a drop-off, and given the forecast demand from the Proposed Scheme, but also across the hour, the facilities provided are expected to mitigate the impact in terms of taxi drop-offs.
- 8.6.584 For pick-ups, the shared taxi pick-up point, located between the Curzon Street station and Moor Street Station, includes a new link between New Canal Street and the proposed taxi pick-up area. The link will provide storage capacity for up to 40 taxis, providing a designated taxi queuing area and ensuring that taxis are kept off the existing road network whilst waiting, thereby mitigating their impact. Based on the average demand per train, the storage space provided would be sufficient to accommodate for demand generated by the Proposed Scheme, as well as Moor Street Station.

### *Pedestrian, cyclist and equestrian*

- 8.6.585 Where Public Rights of Way have been identified as being impacted by the Proposed Scheme, alternative routes have been identified, and appropriate signage will be provided to assist with way-finding and the use of these diversions. The diversion routes are summarised in the table below, together with the mitigation as required.

Table 8-481: Mitigation of severed footpaths

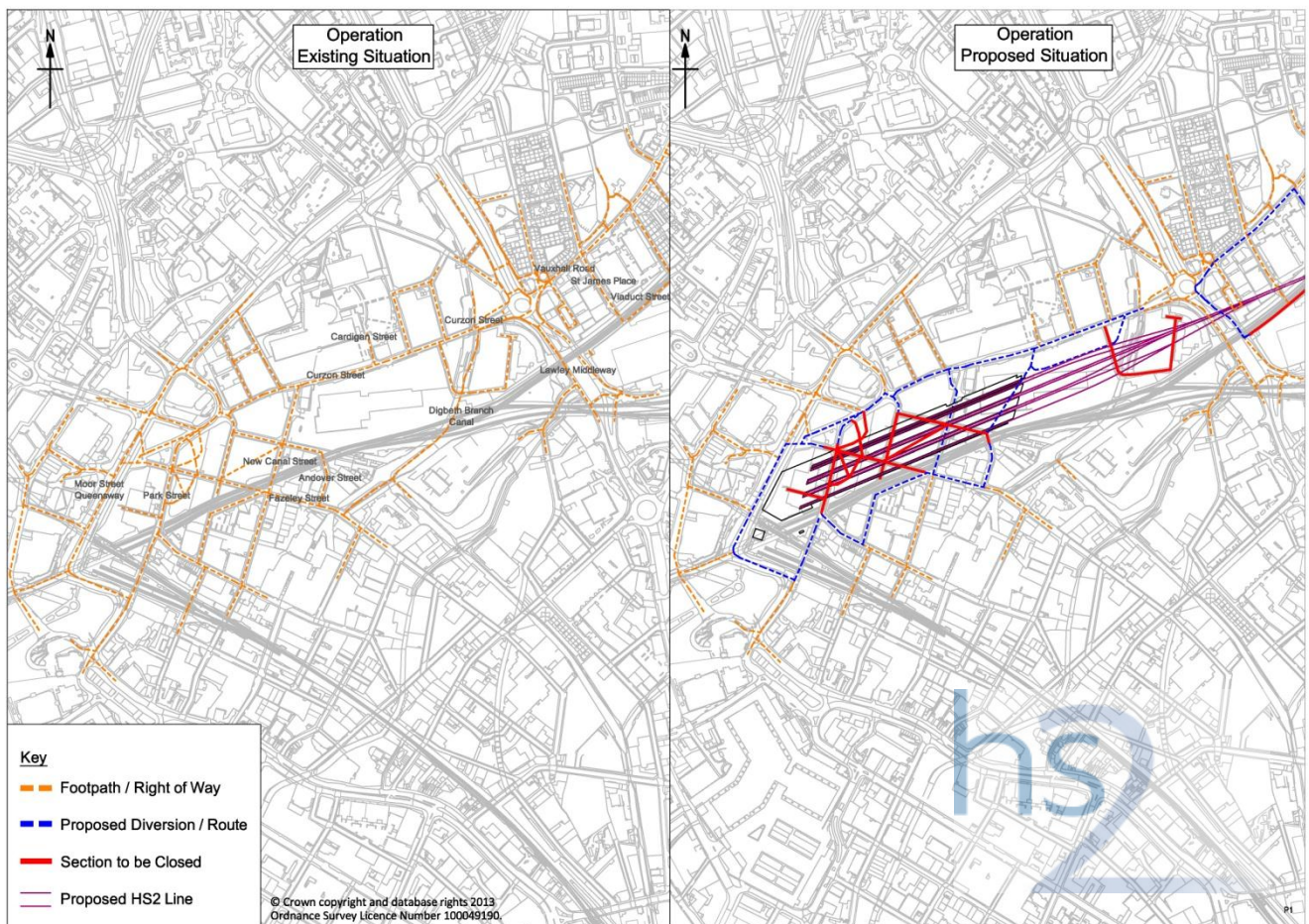
Survey No.	Location	Mitigation
22	Alstom Site Access Road	No mitigation required
48	Aston Church Road	New bridge to be built and diversion as a result is minimal
53	Viaduct Street	Viaduct Street to be closed to traffic. No mitigation proposed.
54	St James Place	No mitigation required
55	Lawford Close	No mitigation required
56/57	Lawley Middleway	No mitigation required
58	Digbeth Branch Canal (eastern side) to the south of Curzon Street	No mitigation required
59	Access Road to the south of Curzon Street (nr Penn St)	No mitigation required
60	Access Road to the south of Curzon Street (nr A4540)	No mitigation required
61	Banbury Street, East of New Canal Street	No mitigation required
62	New Canal Street	No mitigation required
63	New Canal Street	No mitigation required
64	Banbury Street, West of New Canal Street	Banbury Street to be closed. No mitigation proposed. Pedestrians to be diverted through Eastside Park development and New Canal Street



Survey No.	Location	Mitigation
65	Bartholomew Street, North of Fazeley Street	Bartholomew Street to be closed. No mitigation proposed. Pedestrians diverted through Eastside Park development and New Canal Street
66	Fazeley Street, West of Bartholomew Street	Fazeley Street to be closed. No mitigation proposed. Pedestrians diverted through Eastside Park development and New Canal Street
67	Park Street, South of Fazeley Street	Park Street to be closed. No mitigation proposed. Pedestrians diverted along Moor Street Queensway
68/69	Link between Fazeley Street and Park Street	Grass area to be removed. No mitigation proposed.
70	Link between Banbury Street and Bartholomew Street	Grass area to be removed. No mitigation proposed. Pedestrians diverted through Eastside Park development and New Canal Street.

8.6.586 The diversion routes for the public footpaths in the vicinity of the proposed Curzon Street station are shown in the figure below.

Figure 8-54: Footpath diversion routes



8.6.587 In order to accommodate demand from cyclists, and to encourage the use of this mode for access to and from the Curzon Street station, cycle parking will be provided as part of the station's design. Cycle parking will be provided in accessible and secure locations, with the quantum, design and location of these facilities to be confirmed.

- 8.6.588 There are no equestrian routes in the Washwood Heath to Curzon Street area. Therefore, mitigation is not required.

*Waterways and canals*

- 8.6.589 The Proposed Scheme will have no impact on waterways and canals in the Washwood Heath to Curzon Street area. Therefore, no mitigation is required.

*Air transport*

- 8.6.590 Birmingham Airport is located to the south east of the Washwood Heath to Curzon Street area, in the Birmingham Interchange and Chelmsley Wood area (CFA24). Therefore, mitigation is not relevant to this CFA.